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ADAPTIVE EMOTIONSREGULATION IM KONTEXT DER MAJOR DEPRESSION

Adaptive Emotion Regulation in the Context of Major Depressive Disorder

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ABKÜRZUNGSVERZEICHNIS

CFT	Compassion Focused Therapy
ER	Emotionsregulation
KVT	Kognitive Verhaltenstherapie
LCS	Latentes Veränderungsmodell (engl. Latent Change Score model)
MDD	Major Depression (engl. Major Depressive Disorder)
NC	Zuvor nicht depressive Kontrollpersonen (engl. never depressed controls, NC)
RMD	Ehemals depressive Personen (engl. remitted depressed individuals)
TEK	Training Emotionaler Kompetenzen

1 ZUSAMMENFASSUNG UND ABSTRACT

1.1 Zusammenfassung

Defizite in der adaptiven ER und damit assoziierte erhöhte negativer Affekte gelten als Risikofaktoren für die Entstehung und Aufrechterhaltung depressiver Episoden. Eine Verbesserung von Kompetenzen im Bereich der adaptiven ER sollte Personen helfen, negative Affekte bei Bedarf zu reduzieren und könnte so der Entstehung, Aufrechterhaltung und Wiederkehr von MDD entgegenwirken. Ziel der vorliegenden Dissertation war die Identifikation von Ansatzpunkten zur Verbesserung der adaptiven ER bei aktuell und ehemals depressiven Personen. Ein Schwerpunkt wurde dabei auf das Konstrukt der mitfühlenden Selbstunterstützung gelegt.

In einer querschnittlichen Studie untersuchten wir die Hypothese häufiger Selbstkritik und seltener mitfühlender Selbstunterstützung und Selbstbestätigung als stabiler Vulnerabilitätsfaktoren, die über akute Phasen der Major Depression hinaus bestehen bleiben (Studie 1). Wie erwartet berichteten sowohl aktuell als auch ehemals depressive Personen im Vergleich zu gesunden und zuvor nicht depressiven Personen von häufigerer Selbstkritik und seltenerer mitfühlender Selbstunterstützung und Selbstbestätigung. In einer experimentellen Studie untersuchten wir die Effektivität mitfühlender Selbstunterstützung zur Reduktion depressiver Stimmung bei aktuell, ehemals und gesunden, zuvor nicht depressiven Personen (Studie 2). Über die Gruppen hinweg war mitfühlende Selbstunterstützung effektiver als eine Wartebedingung und emotionale Akzeptanz. Bei ehemals depressiven und gesunden, zuvor nicht depressiven Personen war mitfühlende Selbstunterstützung zudem effektiver als kognitive Neubewertung. In einer längsschnittlichen Studie untersuchten wir prospektive Zusammenhänge zwischen verschiedenen, potentiell relevanten Komponenten der adaptiven ER (inklusive Aufmerksamkeit, Klarheit, Körperwahrnehmung, Verstehen, Modifikation, Akzeptanz, Toleranz, mitfühlender Selbstunterstützung und Konfrontationsbereitschaft) und einer nachfolgenden Reduktion negativen Affekts über den Verlauf der Depressionsbehandlung (Studie 3). In einem latenten Veränderungsmodell sagten der Gesamtwert sowie die folgenden Komponenten eine Abnahme negativen Affekts vorher: das Verstehen der Ursachen negativer Affekte, die selbsteingeschätzte Fähigkeit zur Modifikation negativer Affekte, emotionale Akzeptanz und Toleranz sowie die zielbezogene Konfrontationsbereitschaft mit belastenden Situationen.

In einer randomisiert-kontrollierten Studie soll getestet werden, inwieweit eine Verbesserung mitfühlender Selbstunterstützung und weiterer vermeintlich relevanter Komponenten der adaptiven ER durch gezielte Interventionen bei Personen mit Major Depression zu einer Verbesserung der psychischen Gesundheit, inklusive einer Reduktion depressiver Symptome, beiträgt (Studie 4).

Zukünftige Studien werden darüber hinaus zeigen müssen, inwieweit Interventionen zur Verbesserung der adaptiven ER bei ehemals depressiven sowie gesunden, zuvor nicht depressiven Personen zu einer Reduktion des Risikos für die Entstehung und Wiederkehr von Major Depression beitragen können.

1.2 Abstract

Deficits in adaptive emotion regulation (ER) and associated increased negative affects have been suggested to be important risk factors for the development and maintenance of depressive episodes. Facilitating adaptive ER skills should help individuals reduce negative affects if necessary and may thus prevent the development, maintenance, and recurrence of Major Depressive Disorder. This dissertation aimed to identify ways to foster adaptive ER in currently and formerly depressed individuals. An emphasis was put on the construct of self-compassion.

In a cross-sectional study, we tested the hypothesis of increased self-criticism and decreased self-compassion and self-reassurance as stable vulnerability factors that persist over acute episodes of Major Depressive Disorder (Study 1). As expected, both currently and formerly depressed individuals showed higher habitual self-criticism and lower self-compassion and self-reassurance than healthy and never depressed controls. In an experimental study, we tested the effectiveness of self-compassion to decrease depressed mood in currently, formerly and healthy, never depressed individuals (Study 2). Decreases in depressed mood were greater in the self-compassion condition compared to the waiting and acceptance conditions. In recovered depressed and healthy, never depressed participants, self-compassion was also more effective than reappraisal. In a longitudinal study, we investigated prospective effects of various potentially relevant components of adaptive ER (including Awareness, Sensations, Clarity, Understanding, Modification, Acceptance, Tolerance, Self-Compassion and Readiness to Confront) on subsequent reduction in state negative affect over the course of depression treatment (Study 3). Using latent change score modeling, overall adaptive ER predicted subsequent reduction of state negative affect. Exploratory analyses indicated that self-compassion and the following components of adaptive ER were significant predictors of subsequent reduction of negative affect: the understanding of what has caused negative affects, the self-perceived ability to regulate negative affects, emotional acceptance and tolerance as well as readiness to confront distressing situations when necessary to attain personally relevant goals.

A randomized-controlled trial should work to clarify whether systematically enhancing self-compassion and further potentially relevant components of adaptive ER with specific interventions could help improving mental health, including decreasing depressive symptoms, in individuals with Major Depressive Disorder (Study 4). Additionally, future studies on formerly depressed and healthy, never depressed individuals will have to examine whether increasing adaptive ER skills with specific interventions can help prevent the onset and recurrence of Major Depressive Disorder.

2 EINLEITUNG

2.1 Notwendigkeit zur Verbesserung der Behandlung von Major Depression

Major Depression (engl. Major Depressive Disorder, MDD) ist eine hoch prävalente Störung (Kessler et al., 2005), die bei Betroffenen für ausgeprägtes Leiden und Beeinträchtigung und in der Gesellschaft für hohe direkte und indirekte Krankheitskosten verantwortlich ist (Murray & Lopez, 1997; Üstün, Ayaso-Mateos, Chatterji, Mathers & Murray, 2004). Der Verlauf der Störung ist in vielen Fällen chronisch (Arnow & Constantino, 2003) oder rezidivierend (Boland & Keller, 2002). Über 80% der Personen erfahren im Anschluss an eine Remission mindestens eine weitere depressive Episode (Boland & Keller, 2002). Die durchschnittliche Anzahl an Episoden beläuft sich auf vier und eine Episode dauert im Durchschnitt 20 Wochen an (Judd, 1997).

Psychotherapeutische Methoden zur Behandlung von MDD haben sich in der Reduktion der depressiven Symptombelastung und des Rückfallrisikos als wirksam erwiesen (Arnow & Constantino, 2003; Cuipers et al., 2013; Hollon & Ponniah, 2010). Dieselben Studien deuten andererseits aber auch auf die Grenzen verfügbarer therapeutischer Ansätze hin. Mindestens 40% der Patienten sprechen auf eine initiale Behandlung nicht an (Lemmens et al., 2011), viele Patienten behalten nach einer Therapie Residualsymptome (Judd et al., 1998) und ein erheblicher Teil der Responder erfährt im Anschluss an die Behandlung einen Rückfall (Thase et al., 1992; Vittengl, Clark, Dunn & Jarrett, 2007). Da sich diese Resultate größtenteils auf Ergebnisse aus randomisiert-kontrollierten Studien beziehen, kann angenommen werden, dass die tatsächliche Ergebnisqualität innerhalb der Routineversorgung sogar noch geringer ausfällt (Shadish et al., 1997; Westbrook & Kirk, 2005). Besonders stark ausgeprägt sind Residualsymptome (z.B. Brown, Schulberg, Madonia, Shear & Houck, 1996) und Rückfallraten (z.B. Andreescu et al., 2007) im Falle vorliegender komorbider Störungen. Eine epidemiologische Studie (Kessler et al., 2003) ergab, dass fast drei-viertel der lebenszeitlich von MDD betroffenen Personen im Laufe ihres Lebens die diagnostischen Kriterien für mindestens eine weitere Störung erfüllen.

Die dargestellten Befunde deuten auf die Notwendigkeit zur Verbesserung der Behandlung von MDD hin. Eine Möglichkeit, die Effektivität und Nachhaltigkeit verfügbarer Depressionstherapien zu steigern besteht darin, relevante Risikofaktoren für die Entstehung und Aufrechterhaltung depressiver Episoden zu identifizieren und zu prüfen, inwieweit sich diese als therapeutische Ansatzpunkte nutzen und in bestehende Therapieverfahren integrieren lassen.

2.2 Major Depression als eine Störung der adaptiven Emotionsregulation

In der letzten Zeit werden Defizite in der adaptiven ER verstärkt als Risikofaktoren für die Entstehung, Aufrechterhaltung und Wiederkehr von MDD diskutiert (z.B. Berking & Wupperman, 2012;

Ehring, Fischer, Schnülle, Bösterling & Tuschen-Caffier, 2008; Ehring, Tuschen-Caffier, Schnülle, Fischer & Gross, 2010; Joormann & Siemer, 2014). *Emotionsregulation* bezieht sich auf Prozesse, die darauf abzielen die Qualität, Intensität oder Dauer unerwünschter affektiver Zustände in Abhängigkeit von situativen Anforderungen, biologischen Bedürfnissen und individuellen Zielen zu beeinflussen (z.B. Eisenberg, Spinrad, Smith, Philippot & Feldman, 2004; Gratz & Roemer, 2004; Thompson, 1994). ER bezieht sich auf den Umgang mit Affekten unterschiedlicher Valenz. Diese Arbeit fokussiert auf den Umgang mit negativen Affekten im Kontext der MDD. Neben dem Umgang mit Emotionen im engeren Sinne sind Prozesse der ER explizit auch auf den Umgang mit weiteren negativen Affekten übertragbar (Berking & Whitley, 2014; Gross, 2014).

Negative Affekte umfassen Gross (2014) zufolge (1) negative Emotionen (z.B. Traurigkeit, Angst und Ärger), (2) undifferenzierte, psychophysiologische Stressreaktionen und (3) negative Stimmungen (z.B. depressive Verstimmungen). Bestimmte Situationen wie der Tod einer nahestehenden Person, ein Streit mit dem Partner oder eine schlechte Bewertung auf der Arbeit rufen bei den allermeisten Personen negative Affekte hervor. In gewissem Umfang sind negative Affekte somit feste Bestandteile des alltäglichen Lebens (z.B. Teasdale, 1988). Schwierigkeiten in der Reduktion negativer Affekte aufgrund von Defiziten in der adaptiven ER sind mit situationsunangemessenen, zu intensiven und/oder zu lange anhaltenden negativen Affekten assoziiert (Gross & Muñoz, 1995). Intensive und anhaltende negative Affekte sind wesentliche Merkmale der MDD und weiterer psychischer Störungen (APA, 2013). Spezifische negative Affekte, die häufig mit MDD in Verbindung gebracht werden und teilweise sogar in den (Haupt)störungskriterien für MDD (APA, 2013) enthalten sind beinhalten depressive Verstimmungen (z.B. Teasdale & Barnard, 1993), Traurigkeit (z.B. Van Rijsbergen, Bockting, Berking, Koeter & Schene, 2012), Minderwertigkeits- und Schuldgefühle (Kim, Thibodeau, & Jorgensen, 2011).

Neben ihrer Rolle als Merkmale für MDD werden intensive und anhaltende negative Affekte als wichtige Risikofaktoren für die Entstehung und Aufrechterhaltung depressiver Episoden diskutiert. Kognitive Depressionstheorien (z.B. Bower, 1981; Teasdale, 1988; Teasdale & Barnard, 1993) betonen dabei die Rolle einer stimmungsabhängigen Aktivierung depressiogener kognitiver Prozesse wie dysfunktionaler Annahmen oder Biases in basalen kognitiven Prozessen wie Aufmerksamkeit, Interpretation, Erinnerung und exekutiven Funktionen. Sie gehen von reziproken Zusammenhängen zwischen negativen Affekten und kognitiven Prozessen aus. Reziproke Zusammenhänge könnten infolge einer stimmungsabhängigen Aktivierung depressiogener Kognitionen zu einer Intensivierung negativer Affekte und darüber letztendlich zu der Entstehung und Aufrechterhaltung depressiver Episoden beitragen. Frühere Studien stützen eine stimmungsabhängige Aktivierung dysfunktionaler depressiver Annahmen (z.B. Segal et al., 2006; Lethbridge & Allen,

2008; Van Rijsbergen et al., 2013) sowie die Relevanz dysfunktionaler Annahmen für die Aufrechterhaltung depressiver Episoden (z.B. Gotlib & Neubauer, 2000). In einigen Studien sagte das Ausmaß an kognitiver Reaktivität (d.h. der stimmungsabhängigen Aktivierung dysfunktionaler Annahmen) zudem depressive Episoden vorher (z.B. Kuyken et al., 2010; Segal, Gemar & Williams, 1999; Segal et al., 2006; für inkonsistente Befunde siehe z.B. Lethbridge & Allen, 2008; Van Rijsbergen et al., 2013). Darüber hinaus stützen experimentelle Befunde stimmungskongruente Verzerrungen in basalen kognitiven Prozessen wie Aufmerksamkeit (Joormann & Gotlib, 2007), Interpretation (Willoughby, Hailey, Mulkana & Rowe, 2002; Wisco & Nolen-Hoeksema, 2010), Erinnerung (Bower, 1981; Koster, Raedt, Leyman & Lissnyder, 2010) und exekutiven Funktionen (Joormann, 2005; Joormann & Gotlib, 2010; Joormann, Levens & Gotlib, 2011) und bringen diese mit erhöhtem negativem Affekt und MDD in Zusammenhang.

Defizite in der adaptiven ER und damit assoziierte erhöhte negative Affekte werden über akute Phasen von MDD hinaus explizit auch als stabile Vulnerabilitätsfaktoren, die ehemals depressive Personen anfällig für Rückfälle machen, diskutiert (z.B. Ehring et al., 2008, 2010; Gross & Muñoz, 1995; Teasdale, 1988). In einer Studie von Teasdale und Cox (2001) waren negative Affekte bei ehemals depressiven Personen im Vergleich zu gesunden, zuvor nicht depressiven Personen mit einer stärkeren Aktivierung dysfunktionaler Annahmen, einer stärkeren Zunahme negativer Affekte und darüber mit einer höheren Wahrscheinlichkeit für die Entstehung einer depressiven Episode assoziiert. Während Defizite in der adaptiven ER und erhöhte negative Affekte als Risikofaktoren für die Entstehung, Aufrechterhaltung und Wiederkehr von MDD gelten (z.B. Teasdale, 1988), sollten Kompetenzen im Bereich der adaptiven ER Personen helfen, negative Affekte bei Bedarf zu reduzieren. Eine Verbesserung von Kompetenzen in wichtigen Komponenten der adaptiven ER könnte bei aktuell depressiven und depressionsvulnerablen Personen zu einer Reduktion des Risikos für die Entstehung und Aufrechterhaltung depressiver Episoden beitragen (Berking, Ebert, Cuijpers & Hofmann, 2013; Hofmann, Sawyer, Fang & Asnaani, 2012).

2.3 Konzeptualisierung adaptiver Emotionsregulation

Berking und Kollegen (Berking, 2010; Berking & Whitley, 2014; Berking & Znoj, 2008) definieren *adaptive Emotionsregulation* als situationsabhängiges Zusammenspiel aus den folgenden neun Komponenten, die in der Literatur als bedeutsam für einen gesundheitsförderlichen Umgang mit negativen Affekten diskutiert werden: (1) das bewusste Wahrnehmen affektiver Zustände (Aufmerksamkeit; z.B. Lischetzke & Eid, 2003), (2) das korrekte Erkennen und Benennen affektiver Zustände (Klarheit; z.B. Bagby, Parker & Taylor, 1994; Feldman-Barrett, Gross, Christensen & Benvenuto, 2001), (3) die korrekte Interpretation von Körpersignalen (Körperwahrnehmung; z.B. Damasio, 2000), (4) das Verstehen der Ursachen affektiver Zustände (Verstehen; z.B. Southam-

Gerow & Kendall, 2002), (5) die wahrgenommene Fähigkeit zur zielgerichteten Modifikation affektiver Zustände (Modifikation; z.B. Catanzaro & Greenwood, 1994; Salovey, Mayer, Goldman, Turvey & Palfai, 1995) beziehungsweise bei Bedarf auch die (6) Akzeptanz und (7) Toleranz negativer Affekte (Akzeptanz & Toleranz; z.B. Greenberg, 2002; Hayes, Strosahl & Wilson, 1999), (8) die emotionale Unterstützung der eigenen Person in belastenden Situationen (mitfühlende Selbstunterstützung; Gilbert, 2010) und (9) die Bereitschaft zur Konfrontation mit emotional belastenden Situationen (Konfrontationsbereitschaft; z.B. Hayes, Wilson, Gifford, Follette & Strosahl, 1996; Margraf & Berking, 2005).

Eine zentrale Annahme des Modells besteht darin, dass Kompetenzen in den Bereichen der Modifikation und Akzeptanz/Toleranz letztlich für die Verbesserung und Aufrechterhaltung der psychischen Gesundheit entscheidend sind. Von Kompetenzen in den anderen Komponenten des Modells wird angenommen, dass sie im Wesentlichen nur insofern relevant sind, als dass sie die Modifikation und/oder Akzeptanz/Toleranz negativer Affekte erleichtern (Berking, 2010; Berking & Whitley, 2014). Weitere Zusammenhänge zwischen den einzelnen Komponenten des Modells sind in Abbildung 1 dargestellt. Für eine detaillierte Beschreibung des Modells siehe beispielsweise Berking (2010) und Berking und Whitley (2014).

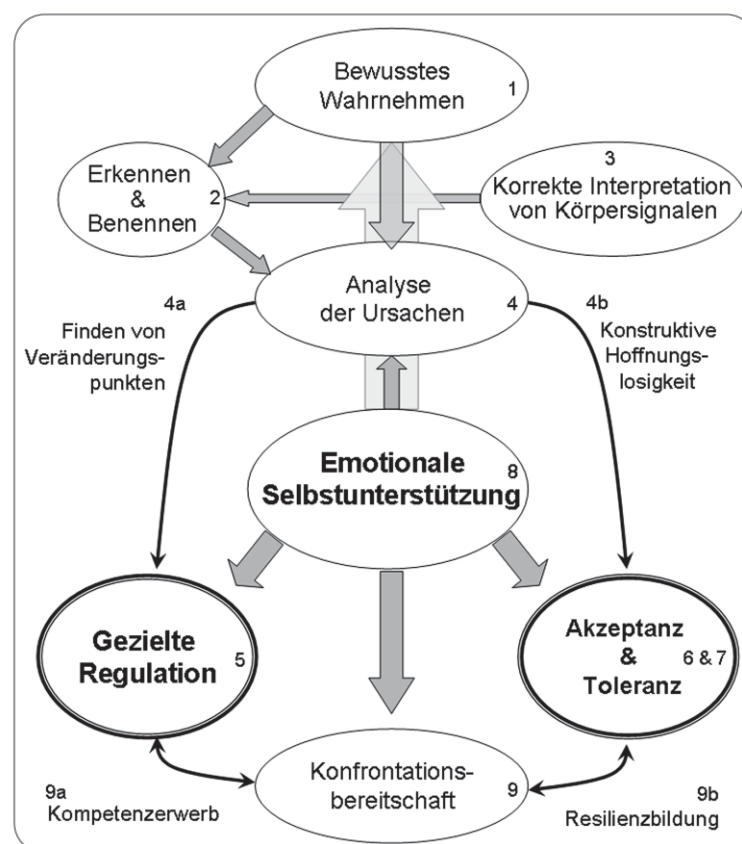


Abbildung 1. Modell adaptiver Emotionsregulation nach Berking

Bisherige querschnittliche (z.B. Berking, Orth, Wupperman, Meier & Caspar, 2008; Berking, Wupperman, Reichardt, Pejic, Dippel & Znoj, 2008; Berking & Znoj, 2008) und prospektive (z.B. Berking, Wirtz, Svaldi & Hofman, 2014; Radkovsky, McArdle, Bockting & Berking, 2014) Studien belegen erwartungsgemäß negative Zusammenhänge zwischen dem Gesamtwert (Durchschnittswert der neun Komponenten) sowie den einzelnen Komponenten des Modells adaptiver ER nach Berking (siehe Abbildung 1 bzw. Berking & Znoj, 2008) und dem Ausmaß an negativem Affekt sowie an depressiven Symptomen. Eine Komponente, die eine lange Tradition in buddhistischen Ansätzen zur Steigerung des Wohlbefindens hat und in letzter Zeit verstärkt in den Aufmerksamkeitsfokus der empirischen Forschung zu psychischer Gesundheit gelangte ist mitfühlende Selbstunterstützung (z.B. Berking & Whitley, 2014; Neff, 2003).

Mitfühlende Selbstunterstützung ist durch die Betroffenheit von und Offenheit für eigenes Leiden gekennzeichnet. Negative Affekte werden dabei nicht vermieden oder abgespalten. Stattdessen nehmen Personen eine externe, beobachtende Perspektive auf sich selbst (d.h. auf das „leidende Selbst“) ein. Im Mittelpunkt mitfühlender Selbstunterstützung steht die Aktivierung eines warmen und starken Gefühls der Anteilnahme mit sich selbst, das mit dem Wunsch verbunden ist sich zu helfen und sich zu unterstützen (Berking & Whitley, 2014; Neff, 2003).

In dem Modell adaptiver ER nach Berking (siehe Abbildung 1 bzw. Berking & Znoj, 2008) wird mitfühlende Selbstunterstützung als eine Art „mood repair“ gesehen, die Personen dabei hilft, sich mit negativen Affekten auseinanderzusetzen. Es wird vermutet, dass mitfühlende Selbstunterstützung eine bewusste Implementierung adaptiver ER Prozesse fördert, die mit einer kurzzeitigen Intensivierung negativer Affekte einhergehen können (z.B. Aufmerksamkeit, Modifikation, Akzeptanz/Toleranz; siehe Abbildung 1 bzw. Berking & Znoj, 2008). Im selben Zug sollte mitfühlende Selbstunterstützung der Verwendung impulsiver, maladaptiver Regulationsbemühungen wie emotionaler Vermeidung vorbeugen, die zu einer kurzfristigen Beruhigung, mittel- bis längerfristig jedoch vermutlich zu der Entstehung und Aufrechterhaltung psychischer Störungen beitragen (z.B. Berking & Whitley, 2014; Neff, 2003; Tice, Bratslawsky & Baumeister, 2001). Besonders eng sollte mitfühlende Selbstunterstützung darüber hinaus mit dem Einsatz potentiell adaptiver ER Strategien wie Selbstbestätigung, Selbstberuhigung, Selbstermunterung und dem eigenen Coaching für einen erfolgreichen Umgang mit negativen Affekten assoziiert sein (Berking & Whitley, 2014; Gilbert, Clarke, Hempel, Miles & Irons, 2004). In der Reaktion auf wahrgenommenes Versagen und damit assoziierter negativer Affekte (z.B. Gefühle der Unzulänglichkeit und des Versagens) wird mitfühlende Selbstunterstützung zudem als eine adaptive Alternative zu Selbstkritik, einem vermeintlichen Risikofaktor für MDD, diskutiert (z.B. Gilbert et al., 2004).

Neben der Erleichterung adaptiver ER Prozesse wird mitfühlende Selbstunterstützung auch als eine eigenständige, adaptive ER Strategie diskutiert (z.B. Neff, 2003). Die Unterscheidung zwischen adaptiven und maladaptiven Strategien ist stark vereinfacht und unterschlägt die Relevanz eines flexiblen, kontextabhängigen Einsatzes von ER Strategien für die psychische Gesundheit (Bonanno, Papa, Lalande, Westphal & Coifman, 2004). Dennoch gibt es Hinweise darauf, dass manche Strategien eher dabei helfen, negative Affekte bei Bedarf zu reduzieren, während andere Strategien die Aufrechterhaltung und Intensivierung negativer Affekte begünstigen und verstärkt mit psychischen Störungen, inklusive MDD, assoziiert sind (Joormann & Siemer, 2014). Als eine adaptive ER Strategie sollte mitfühlende Selbstunterstützung vor diesem Hintergrund zu einer Reduktion negativer Affekte beitragen und darüber negativ mit MDD und weiteren psychischen Störungen assoziiert sein (z.B. Neff, 2003). Da mitfühlende Selbstunterstützung explizit auf das eigene Leiden aufbaut könnte es sich hierbei um eine Strategie handeln, die insbesondere auch im Umgang mit erhöhten negativen Affekten eingesetzt werden kann (Berking & Whitley, 2014; Diedrich, Grant, Hofmann, Hiller & Berking, 2014). In diesem Punkt könnte sich mitfühlende Selbstunterstützung von anderen Strategien wie Akzeptanz und kognitiver Neubewertung, die in der Literatur als adaptive ER Strategien diskutiert werden (z.B. Gross & John, 2003; Hayes et al., 1999), unterscheiden (Berking & Whitley, 2014; Diedrich et al., 2014).

Ergebnisse aus bisherigen querschnittlichen und längsschnittlichen Untersuchungen stützen erwartungsgemäß negative Zusammenhänge zwischen einem häufigeren Einsatz mitfühlender Selbstunterstützung und depressiven Symptomen in gesunden, häufig studentischen, Stichproben (MacBeth & Gumley, 2012; Neff & McGehee, 2010; Neff, 2003; Neff, Rude & Kirkpatrick, 2007). Eine Studie von Krieger und Kollegen (Krieger, Altenstein, Baettig, Doerig & Holtforth, 2013) replizierte negative Zusammenhänge zwischen mitfühlender Selbstunterstützung und depressiven Symptomen in einer Stichprobe aktuell depressiver Personen. In einer experimentellen Untersuchung konnte die Effektivität mitfühlender Selbstunterstützung zur Reduktion depressiver Stimmung in einer MDD Stichprobe gegenüber einer neutralen Wartebedingung bestätigt werden (Diedrich et al., 2014). Ergebnisse aus vorläufigen Interventionsstudien zu der Compassion Focused Therapy (CFT; Gilbert, 2010) liefern weitere Hinweise auf das Potential mitfühlender Selbstunterstützung zur Reduktion depressiver Symptome (Gilbert & Procter, 2006). Die CFT ist derzeit die einzige Therapie, die zur Verbesserung der psychischen Gesundheit explizit und ausschließlich auf eine Steigerung mitfühlender Selbstunterstützung abzielt. Weitere Ansätze, die Interventionen zur Steigerung mitfühlender Selbstunterstützung enthalten, wie beispielsweise das Training Emotionaler Kompetenzen (TEK, Berking, 2010; Berking & Whitley, 2014) und achtsamkeitsbasierte Programme (z.B. Neff & Germer, 2013), liefern zusätzliche Hinweise auf die Ef-

ektivität mitfühlender Selbstunterstützung zur Reduktion depressiver Symptome. Einschränkend ist hierbei jedoch zu erwähnen, dass die Relevanz mitfühlender Selbstunterstützung für Therapieeffekte dieser kombinierten Ansätze bislang noch unklar ist.

2.4 Das Training Emotionaler Kompetenzen

Vor dem Hintergrund von Defiziten in der adaptiver ER und damit assoziierter erhöhter negativer Affekte als vielversprechender Risikofaktoren für MDD (siehe 2.2 bzw. z.B. Berking & Whitley, 2014; Joormann & Siemer, 2014) könnte eine systematische Verbesserung relevanter Komponenten der adaptiven ER durch gezielte Interventionen zu einer Reduktion depressiver Symptome und der Prävention der Entstehung oder eines Rückfalls von MDD beitragen. Das TEK ist ein gruppenbasiertes, strukturiertes, hoch standardisiertes und störungsübergreifendes Training, das zur Verbesserung der psychischen Gesundheit explizit und ausschließlich an einer Förderung der adaptiven ER entsprechend des Modells von Berking (siehe Abbildung 1 bzw. Berking & Znoj, 2008) ansetzt. Das TEK kombiniert Elemente aus verschiedenen psychotherapeutischen Ansätzen wie der kognitiven Verhaltenstherapie (KVT; Beck, 2011), der dialektisch-behavioralen Therapie (Linehan, 1993), der emotionsfokussierten Therapie (Greenberg, 2002), achtsamkeitsbasierten Interventionen (Kabat Zinn, 2003), neuropsychotherapeutischen Ansätzen (Grawe, 2006), der CFT (Gilbert, 2010) und ressourcenfokussierten Interventionen (Grawe, 2002). Konkrete Bausteine des TEK umfassen: Muskelentspannung, Atementspannung, bewertungsfreies Wahrnehmen, Akzeptieren und Tolerieren, mitfühlende Selbstunterstützung, Analysieren und Regulieren. Tabelle 1 gibt eine Übersicht über die einzelnen Bausteine des TEK. Eine detaillierte Beschreibung des Trainings findet sich in dem Therapiemanual (Berking, 2010; Berking & Schwarz, 2014; Berking & Whitley, 2014).

Vorläufige Evaluationsstudien stützen das TEK als ein effektives Programm zur Verbesserung potentiell relevanter Komponenten der adaptiven ER (inklusive Aufmerksamkeit, Klarheit, Körperwahrnehmung, Verstehen, Modifikation, Akzeptanz, Toleranz, mitfühlender Selbstunterstützung und Konfrontationsbereitschaft) und der Reduktion negativen Affekts sowie depressiver Symptome (z.B. Berking et al., 2013; Berking, Meier & Wupperman, 2010; Berking, Wupperman et al., 2008). In dem klinischen Setting wurde die Wirksamkeit des TEK bislang an stationären Patienten untersucht. In einer Studie wurde einer zufällig ausgewählten Stichprobe von Patienten mit unterschiedlichen Störungsbildern dabei angeboten Teile einer regulären KVT durch eine Kurzfassung des TEK zu ersetzen (Berking, Wuppermann et al., 2008). Im Vergleich zu Personen der reinen KVT Bedingung zeigten Patienten der kombinierten KVT und TEK Bedingung eine signifikant größere Zunahme des Gesamtwerts adaptiver ER (inklusive Aufmerksamkeit, Klarheit, Körperwahrnehmung, Verstehen, Modifikation, Akzeptanz, Toleranz, mitfühlender Selbstunterstützung

und Konfrontationsbereitschaft) und positiven Affekts sowie eine stärkere Abnahme negativen Affekts und depressiver Symptome. In einer prospektiven randomisiert-kontrollierten Studie berichteten depressive Patienten, bei denen einige KVT Sitzungen durch eine Kurzform des TEK ersetzt wurden ebenfalls von einer stärkeren Zunahme wichtiger Komponenten der adaptiven ER (Akzeptanz, Toleranz, mitfühlende Selbstunterstützung und Modifikation) und des Wohlbefindens sowie einer stärkeren Abnahme negativen Affekts und depressiver Symptome als Personen der reinen KVT Bedingung (Berking et al., 2013). Mitfühlende Selbstunterstützung nahm in der kombinierten KVT und TEK Gruppe im Vergleich zu der reinen KVT Gruppe am stärksten zu (Berking et al., 2013).

Tabelle 1.

Übersicht über die Therapiebausteine des Trainings Emotionaler Kompetenzen

Muskel- und Atementspannung
Vermittlung der Methode der progressiven Muskelrelaxation (Jacobson, 2006) und einfacher Atemübungen zur Reduktion des psychophysiologischen Arousals und der Erleichterung von Techniken, die kognitive Ressourcen erfordern.
Bewertungsfreies Wahrnehmen
Vermittlung von Strategien zur bewertungsfreien Wahrnehmung affektiver Zustände, inklusive (1) dem Benennen von Affekten, (2) der Einschätzung der Intensität von Affekten auf einer Skala von eins bis zehn und (3) der Identifikation affektassoziierter Körperwahrnehmungen.
Akzeptieren und Tolerieren
Erarbeitung eines fünfstufigen persönlichen Akzeptanz- und Toleranzfahrplans inklusive (1) dem Setzen von Akzeptanz bestimmter affektiver Zustände als Ziel, (2) der Stärkung dieses Ziels durch Begründung, (3) der Betrachtung von Gefühlen als Verbündeter, (4) dem Bewusstmachen der eigenen Belastbarkeit und (5) der Erinnerung an die Vergänglichkeit von Gefühlen.
Mitfühlende Selbstunterstützung
Erarbeitung einer warmen, Anteilnehmenden und mitfühlenden Haltung der eigenen Person (d.h. dem „leidenden Selbst“) gegenüber. Darauf aufbauend werden Selbstunterstützungshandlungen mit dem Ziel sich innerlich zu ermutigen und sich selbst aufzumuntern eingeführt.
Analysieren
Erarbeitung auslösender und aufrechterhaltender Faktoren für eigene affektive Reaktionen (jeweils getrennt für unterschiedliche Affekte). Das zugrundeliegende Modell der Emotionsentstehung beinhaltet (1) ein Gefühl, (2) externe und interne emotionsauslösende Ereignisse, (3) die Grundstimmung, (4) die Ausrichtung der Aufmerksamkeit auf und die Bewertung von emotionsauslösenden Ereignissen, (5) Bedürfnisse, Wünsche, Ziele und Erwartungen die mit den jeweiligen Bewertungen zusammenhängen sowie (6) alte Bewertungsmuster. Darüber hinaus enthält das Modell (7) Körperreaktionen, die mit dem Gefühl zusammenhängen, (8) sekundäre Emotionen, die durch das primäre Gefühl ausgelöst werden und (9) motivationale Impulse und (10) Verhaltensweisen, die aus dem Gefühl resultieren und über Feedbackschleifen auf dieses zurückwirken können. Kurz- und langfristige Vor- und Nachteile der analysierten Gefühle werden gesammelt.
Regulieren
Definition eines Zielgefühls und Erarbeitung von Veränderungsmöglichkeiten in den 10 Komponenten des Modells der Emotionsentstehung (siehe Analysieren) zur Erreichung dieses Gefühls. Strategien im Bereich des Verhaltens beinhalten dabei (1) die Nutzung affektiver Informationen („Use the blues“), (2) ein Verhalten entgegen des ursprünglichen Impulses („Opposite action“) und (3) Ablenkungsstrategien („Ablenkung“).

3 DARSTELLUNG DES DISSERTATIONSVORHABENS

3.1 Herleitung der Fragestellungen

Vor dem Hintergrund von Defiziten in der adaptiven ER und damit assoziierter erhöhter negativer Affekte als vielversprechender Risikofaktoren für die Entstehung und Aufrechterhaltung depressiver Episoden (siehe 2.2 bzw. Berking & Wupperman, 2012; Joormann & Siemer, 2014) stellt die Identifikation von Ansatzpunkten zur Verbesserung der adaptiven ER bei aktuell depressiven und depressionsvulnerablen Personen in der psychologischen Forschung derzeit eine wichtige Herausforderung dar. Basierend auf der bisherigen Literatur zu einem gesundheitsförderlichen Umgang mit negativen Affekten definieren Berking und Kollegen (Berking, 2010; Berking & Whitley, 2014; Berking & Znoj, 2008) adaptive ER als situationsabhängiges Zusammenspiel aus den folgenden neun Komponenten: Aufmerksamkeit, Klarheit, Körperwahrnehmung, Verstehen, Modifikation, Akzeptanz, Toleranz, mitfühlende Selbstunterstützung und Konfrontationsbereitschaft (siehe 2.3 bzw. Abbildung 1; Berking, 2010; Berking & Whitley, 2014; Berking & Znoj, 2008). Ein besonderer Fokus wurde in der empirischen Forschung zu adaptiver ER in der letzten Zeit auf das Konstrukt der mitfühlenden Selbstunterstützung gelegt (z.B. Berking & Whitley, 2014; Neff, 2003). Wie eingangs dargestellt, könnte mitfühlende Selbstunterstützung weitere adaptive ER Prozesse wie Selbstbestätigung fördern und maladaptiven Reaktionen auf negative Affekte wie Selbstkritik entgegenwirken (siehe 2.3 bzw. z.B. Berking & Whitley, 2014; Gilbert et al., 2004). Neben der Erleichterung weiterer adaptiver ER Prozesse wird mitfühlende Selbstunterstützung darüber hinaus auch als eine eigenständige, adaptive ER Strategie diskutiert (z.B. Neff, 2003). Da mitfühlende Selbstunterstützung explizit auf das eigene Leiden aufbaut könnte es sich hierbei um eine Strategie handeln, die, im Gegensatz zu anderen Strategien wie Akzeptanz und kognitiver Neubewertung, insbesondere auch im Umgang mit erhöhten negativen Affekten eingesetzt werden kann (Berking & Whitley, 2014; Diedrich et al., 2014). Akzeptanz und kognitive Neubewertung werden in der Literatur mit am häufigsten als adaptive ER Strategien diskutiert. *Akzeptanz* bezieht sich im Kontext der ER auf das (zeitweise) Erlauben und Zulassen negativer Affekte (Berking, 2010; Berking & Whitley, 2014). *Kognitive Neubewertung* bezieht sich als ER Strategie auf die kognitive Rekonstruktion einer potentiell emotionsauslösenden Situation in einer Art und Weise, die den emotionalen Impakt der jeweiligen Situation ändert (Gross & John, 2003).

Bisherige querschnittliche und prospektive Studien ergaben erwartungsgemäß negative Zusammenhänge zwischen dem Gesamtwert sowie den einzelnen Komponenten des Modells adaptiver ER nach Berking (siehe Abbildung 1 bzw. Berking & Znoj, 2008) und depressiven Symptomen (z.B. Berking et al., 2014; Berking, Orth et al., 2008; Berking, Wupperman et al., 2008; Berking & Znoj, 2008; Radkovsky et al., 2014). Erste weitere Studien stützen konsistent negative Zusammenhänge

zwischen mitfühlender Selbstunterstützung und depressiven Symptomen (siehe 2.3 bzw. z.B. Diedrich et al., 2014; Krieger et al., 2013; MacBeth & Gumley, 2012; Neff & McGehee, 2010; Neff, 2003; Neff et al., 2007). Die meisten dieser Studien wurden an gesunden, häufig studentischen, Stichproben durchgeführt. Wenige Studien haben mitfühlende Selbstunterstützung bislang in klinisch diagnostizierten MDD Stichproben untersucht. Keine Studie hat mitfühlende Selbstunterstützung bisher bei ehemals depressiven Personen untersucht und in der Häufigkeit und Effektivität zwischen aktuell, ehemals und zuvor nicht depressiven Personen verglichen. Unklar bleibt vor diesem Hintergrund beispielsweise, inwieweit eine Verringerung mitfühlender Selbstunterstützung über akute Phasen von MDD hinaus einen stabilen Vulnerabilitätsfaktor für Rückfälle darstellt. Zu klären bleibt weiterhin, inwieweit mitfühlende Selbstunterstützung ehemals depressiven Personen dabei helfen kann, negative Affekte, und damit das Rückfallrisiko (siehe 2.2 bzw. z.B. Teasdale, 1988; Gross & Muñoz, 1995), zu reduzieren und ob sich aktuell, ehemals und zuvor nicht depressive Personen in ihrer Fähigkeit zur Implementierung mitfühlender Selbstunterstützung unterscheiden. Weitere Forschung zu ER bei ehemals depressiven Personen ist vor dem Hintergrund hoher Rückfallraten (siehe 2.1 bzw. Boland & Keller, 2002; Thase et al., 1992; Vittengl et al., 2007) und der Diskussion um Defizite in der adaptiven ER und damit assoziierter erhöhter negativer Affekte als Risikofaktoren für Rückfälle (siehe 2.2 bzw. Ehring et al., 2008, 2010; Gross & Muñoz, 1995; Teasdale, 1988) dringend erforderlich. Da es sich bei mitfühlender Selbstunterstützung in der psychologischen Forschung um ein relativ neues Konzept handelt, sollten zukünftige Studien die Effektivität mitfühlender Selbstunterstützung zudem auch mit etablierteren adaptiven ER Strategien wie Akzeptanz und kognitiver Neubewertung vergleichen. Inkonsistente Befunde für Zusammenhängen zwischen Akzeptanz (z.B. Garnefski & Kraaij, 2006; Martin & Dahlen, 2005; Liverant, Brown, Barlow & Roemer, 2008) sowie kognitiver Neubewertung (z.B. Garnefski & Kraaij, 2006; Gross, 1998) und depressiven Symptomen in früheren Studien unterstützen die Relevanz weiterer Forschung zur Identifikation adaptiver ER Strategien.

In der klinischen Praxis könnten mitfühlende Selbstunterstützung und weitere relevante Komponenten der adaptiven ER wichtige therapeutische Ansatzpunkte für die Behandlung und Prävention von MDD liefern. Vorläufige Interventionsstudien zu dem TEK (siehe 2.4 bzw. Berking, 2010; Berking & Whitley, 2014) deuten auf die Wirksamkeit einer Verbesserung der Komponenten des Modells adaptiver ER nach Berking (siehe Abbildung 1 bzw. Berking & Znoj, 2008) zur Reduktion depressiver Symptome hin. Personen, bei denen einige Stunden einer regulären KVT durch eine Kurzfassung des TEK ersetzt wurden zeigten dabei eine stärkere Zunahme der adaptiven ER entsprechend des Modells adaptiver ER nach Berking (siehe Abbildung 1 bzw. Berking & Znoj, 2008) sowie eine stärkere Abnahme an negativem Affekt und an depressiven Symptomen als

Personen einer reinen KVT für MDD Bedingungen (Berking et al., 2013; Berking, Wupperman et al., 2008). Noch nicht ausreichend geklärt ist bislang, inwieweit eine Verbesserung der psychischen Gesundheit über den Verlauf der Depressionsbehandlung auf eine Verbesserung potentiell relevanter Komponenten der adaptiven ER (inklusive Aufmerksamkeit, Klarheit, Körperwahrnehmung, Verstehen, Modifikation, Akzeptanz, Toleranz, mitfühlender Selbstunterstützung und Konfrontationsbereitschaft) zurückgeht und wie Effekte des TEK mit der Wirksamkeit anderer Interventionen wie der KVT zusammenhängen. Eine Studie im Bereich der posttraumatischen Belastungsstörung liefert erste Hinweise darauf, dass ein Training zur Verbesserung der adaptiven ER Behandlungsergebnisse nachfolgender Interventionen, die die Auseinandersetzung mit emotional belastenden Themen erfordern, verbessern könnte (Cloitre, Koenen, Cohen, & Han, 2002).

3.2 Ziele und Hypothesen des Dissertationsvorhabens

Vor dem Hintergrund der bisherigen Forschungslage wurden dieser Arbeit folgende Ziele und Hypothesen zu Grunde gelegt:

1. Querschnittlicher Vergleich der Häufigkeit von Selbstkritik, mitfühlender Selbstunterstützung und Selbstbestätigung bei aktuell, ehemals und gesunden, zuvor nicht depressiven Personen. Häufige Selbstkritik sowie seltene mitfühlende Selbstunterstützung und Selbstbestätigung sollten als stabile Vulnerabilitätsfaktoren, die über akute Phasen von MDD hinaus bestehen bleiben, getestet werden. Aktuell und ehemals depressive Personen sollten im Vergleich zu zuvor nicht depressiven Personen von häufigerer Selbstkritik und seltenerer mitfühlender Selbstunterstützung und Selbstbestätigung berichten (Studie 1).
2. Experimentelle Untersuchung der Effektivität mitfühlender Selbstunterstützung zur Reduktion depressiver Stimmung bei aktuell, ehemals und gesunden, zuvor nicht depressiven Personen. Mitfühlende Selbstunterstützung wird hierfür mit einer neutralen Wartebedingung, emotionaler Akzeptanz und kognitiver Neubewertung verglichen. Vor dem Hintergrund bisheriger Befunde zu Zusammenhängen zwischen mitfühlender Selbstunterstützung, Akzeptanz, kognitiver Neubewertung und depressiven Symptomen sowie der Annahme, dass mitfühlende Selbstunterstützung auch im Umgang mit erhöhten negativen Affekten eingesetzt werden kann, sollte mitfühlende Selbstunterstützung in der Reduktion depressiver Stimmung über die Gruppen hinweg mindestens so effektiv sein wie (1) eine neutrale Wartebedingung, (2) emotionale Akzeptanz und (3) kognitive Neubewertung (Studie 2).
3. Längsschnittliche Untersuchung von Effekten mehrerer, potentiell relevanter Komponenten der adaptiven ER (inklusive Aufmerksamkeit, Klarheit, Körperwahrnehmung, Verstehen, Modifikation, Akzeptanz, Toleranz, mitfühlender Selbstunterstützung und Konfrontationsbereitschaft) zurückgeht und wie Effekte des TEK mit der Wirksamkeit anderer Interventionen wie der KVT zusammenhängen.

nung, Verstehen, Modifikation, Akzeptanz, Toleranz, mitfühlender Selbstunterstützung, und Konfrontationsbereitschaft) auf eine nachfolgende Reduktion negativen Affekts während der Depressionsbehandlung. Der Gesamtwert adaptiver ER sollte in einem latenten Veränderungsmodell eine nachfolgende Reduktion negativen Affekts vorhersagen. In explorativen Analysen sollten Effekte mitfühlender Selbstunterstützung und weiterer einzelner potentiell relevanter Komponenten der adaptiven ER auf die Reduktion negativen Affekts untersucht werden (Studie 3).

4. Vorstellung einer randomisiert-kontrollierten Studie zur Untersuchung, inwieweit eine Verbesserung der psychischen Gesundheit (inklusive einer Abnahme depressiver Symptome) bei Personen mit MDD infolge des TEK auf eine Verbesserung der adaptiven ER (inklusive Aufmerksamkeit, Klarheit, Körperwahrnehmung, Verstehen, Modifikation, Akzeptanz, Toleranz, mitfühlender Selbstunterstützung und Konfrontationsbereitschaft) zurückgeht (Stand-Alone Effekte). Darüber hinaus soll getestet werden, inwieweit Effekte des TEK mit der Wirksamkeit anderer Interventionen wie der KVT für MDD zusammenhängen (Augmentation Effekte). In der geplanten Untersuchung sollen ER und Indikatoren psychischer Gesundheit (inklusive depressiver Symptome) hierfür zu mehreren Zeitpunkten und mittels unterschiedlicher Messverfahren (Selbstbericht, Beobachterrating, ambulantes Assessment, experimentelle Untersuchungen, Analyse von Haarsteroiden) über den Verlauf einer Gruppen- und einer anschließenden KVT für MDD Phase erhoben und zwischen Teilnehmern der TEK Gruppe, einer aktiven Kontroll- und einer Wartekontrollgruppe verglichen werden. Explorative Analysen sollen explizit auch die Relevanz einzelner Komponenten der adaptiven ER (d.h. Aufmerksamkeit, Klarheit, Körperwahrnehmung, Verstehen, Modifikation, Akzeptanz, Toleranz, mitfühlende Selbstunterstützung und Konfrontationsbereitschaft) für Therapieeffekte des TEK untersuchen.

3.3 Überblick über das Gesamtprojekt

Die Artikel, die dieser Dissertation zugrunde liegen, entstanden vorwiegend im Rahmen einer multizentrischen, randomisiert-kontrollierten klinischen Interventionsstudie zur Evaluation des TEK bei Personen mit MDD (Studien 1, 2, 4). Diese Studie findet unter der Leitung von Prof. Dr. M. Berking, Prof. W. Rief und Prof. W. Hiller seit Juni 2010 in Ausbildungsambulanzen in Kassel, Mainz und Marburg statt. Die Daten für Studie 3 stammen aus einer Studie, die zwischen 2010 und 2012 unter der Leitung von Prof. Dr. M. Berking, Dr. D. D. Ebert, Dipl.-Psych. A. Radkovsky und Dipl.-Psych. C. M. Wirtz in der Schön-Klinik Bad Arolsen (Fachklinik für Psychosomatik und Psychotherapie) durchgeführt wurde.

4 ZUSAMMENFASSUNG DER STUDIEN

Im Folgenden werden die vier Studien, die im Rahmen der vorliegenden Dissertation durchgeführt wurden, zusammenfassend dargestellt.

4.1 Studie I: Querschnittliche Untersuchung der Häufigkeit von Selbstkritik, mitfühlender Selbstunterstützung und Selbstbestätigung bei aktuell, ehemals und zuvor nicht depressiven Personen

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Hintergrund. Selbstkritik sowie mitfühlende Selbstunterstützung und Selbstbestätigung werden als alternative Reaktionen auf wahrgenommenes Versagen und damit assoziierter negativer Affekte konzeptualisiert (z.B. Gilbert et al., 2004). Während Selbstkritik als Risikofaktor für die Entstehung und Aufrechterhaltung depressiver Episoden gilt (z.B. Gilbert et al., 2004; Whelton & Greenberg, 2005), werden mitfühlende Selbstunterstützung und Selbstbestätigung als Resilienz-faktoren diskutiert, die dabei helfen, negative Affekte bei Bedarf zu reduzieren und die so negativ mit MDD und der Vulnerabilität für MDD assoziiert sein sollten (z.B. Neff, 2003). Bisherige Studien stützen entsprechende positive/negative Zusammenhänge zwischen Selbstkritik (Enns & Cox, 1999; Enns, Cox & Borger, 2001)/mitfühlender Selbstunterstützung (MacBeth & Gumley, 2012; Krieger et al., 2013; Neff, 2003) sowie Selbstbestätigung (Gilbert et al., 2004) und depressiven Symptomen. Die meisten dieser Studien wurden an gesunden, häufig studentischen, Stichproben durchgeführt. Weitere Studien sind nötig um Selbstkritik, mitfühlende Selbstunterstützung und Selbstbestätigung an klinisch diagnostizierten Stichproben zu untersuchen. Keine Studie hat Selbstkritik, mitfühlende Selbstunterstützung und Selbstbestätigung bisher bei ehemals depressiven (depressionsvulnerablen) Personen untersucht und in der Häufigkeit zwischen aktuell, ehemals und gesunden, zuvor nicht depressiven Personen verglichen. Die Bedeutung häufiger Selbstkritik und seltener mitfühlender Selbstunterstützung und Selbstbestätigung als stabiler Vulnerabilitätsfaktoren, die über akute Phasen von MDD hinaus bestehen bleibt daher weitgehend ungeklärt.

Die vorliegende Studie zielte vor diesem Hintergrund auf einen Vergleich habitueller Selbstkritik, mitfühlender Selbstunterstützung und Selbstbestätigung zwischen aktuell, ehemals und zuvor nicht depressiven Personen ab. Wenn häufige Selbstkritik und seltene mitfühlende Selbstunterstützung und Selbstbestätigung über akute Phasen von MDD hinaus relevante und stabile Vulne-

abilitätsfaktoren für MDD darstellen sollten aktuell und ehemals depressive Personen im Vergleich zu zuvor nicht depressiven Personen von häufigerer Selbstkritik und seltenerer mitfühlender Selbstunterstützung und Selbstbestätigung berichten. Zusammenhänge zwischen Selbstkritik, mitfühlender Selbstunterstützung und Selbstbestätigung und dem Status aktueller und ehemaliger MDD sollten über den Einfluss potentiell assoziierter, etablierter Korrelate von MDD hinaus bestehen bleiben. Folgende etabliertere Korrelate von MDD wurden in die Analysen mit eingeschlossen: perfektionistische Überzeugungen und Gedanken, Rumination und generelle adaptiver ER.

Methoden. Die Stichprobe bestand aus 101 Personen mit MDD (Durchschnittsalter: 36.11 Jahre, $SD = 11.91$; 67.3 % weiblich; 61.0 % mit Abitur) sowie 30 ehemals depressiven Personen (engl. remitted depressed individuals, RMD; Durchschnittsalter: 39.50 Jahre, $SD = 12.13$) und 30 gesunden, zuvor nicht depressiven Kontrollpersonen (engl. never depressed controls, NC; Durchschnittsalter: 39.17 Jahre, $SD = 12.42$). Teilnehmer der RMD und NC Gruppen wurden bezüglich des Alters, Geschlechts und Bildungsgrads mit 30 zufällig ausgewählten MDD Patienten (Durchschnittsalter: 41.03 Jahre, $SD = 12.45$; 66.7 % weiblich; 60.0 % mit Abitur) gematched. Personen der aktuell depressiven Gruppe erfüllten zum Studienzeitpunkt die DSM-IV Kriterien für eine MDD (APA, 2000). Personen der RMD Gruppe hatten in der Vergangenheit mindestens eine depressive Episode ($M = 1.47$, $SD = 1.63$, $Range = 1-3$) und waren zum Studienzeitpunkt seit mindestens zwei Monaten remittiert ($M = 32.87$ Monate, $SD = 37.10$, $Range = 2-132$). Personen der NC Bedingung hatten keine MDD in der Vorgeschichte und erfüllten zum Studienzeitpunkt nicht die Kriterien für eine psychische Störung. Weitere Einschlusskriterien für alle Gruppen umfassten ein Mindestalter von 18 Jahren und ausreichende Deutschkenntnisse. Ausschlusskriterien waren akute Suizidalität, komorbide psychotische, substanzbezogene, bipolare Störungen, Gehirnschäden und andere schwere kognitive Einschränkungen. Zur Erfassung von Selbstkritik, mitfühlender Selbstunterstützung, Selbstbestätigung und den etablierteren Korrelaten von MDD (d.h. perfektionistischer Überzeugungen und Gedanken, Rumination und genereller adaptiver ER) füllten die Teilnehmer mehrere Selbstberichtfragebogen aus.

Ergebnisse. Voranalysen basierend auf der gesamten Stichprobe der MDD Teilnehmer ($N = 101$) stützten signifikante Zusammenhänge zwischen depressiven Symptomen und Selbstkritik (Pearsons $r = .44$, $p < .01$), mitfühlender Selbstunterstützung ($r = -.36$, $p < .01$), Selbstbestätigung ($r = -.41$, $p < .01$) sowie den etablierteren Korrelaten von MDD (d.h. perfektionistischer Überzeugungen und Gedanken, Rumination und genereller adaptiver ER). Eine Hauptachsen-Faktorenanalyse resultierte in einer einzelnen Dimension mit Selbstkritik (Faktorladung: .72), mitfühlender Selbstunterstützung (Faktorladung: -.62), Selbstbestätigung (Faktorladung: -.80) und den etablierteren

Korrelaten von MDD (d.h. perfektionistischer Überzeugungen und Gedanken, Rumination und genereller adaptiver ER) als unterschiedlicher Pole einer Dimension.

Multivariate Varianzanalysen mit Gruppe (MDD, RMD, NC; n = jeweils 30) als unabhängiger Variable und Selbstkritik, mitfühlender Selbstunterstützung, Selbstbestätigung und den etablierteren Korrelaten von MDD (d.h. perfektionistischer Überzeugungen und Gedanken, Rumination und genereller adaptiver ER) als abhängigen Variablen ergaben signifikante Gruppenunterschiede für alle Skalen (Bonferroni-Korrektur zur Kontrolle einer möglichen Alphafehler-Kumulierung). Follow-up t-Tests ergaben erwartungsgemäß signifikante Unterschiede zwischen Personen der MDD und NC Gruppen auf allen Skalen (für Selbstkritik: $d = 2.40$, für mitfühlende Selbstunterstützung: $d = -2.20$, für Selbstbestätigung: $d = -2.33$, für perfektionistische Überzeugungen: $d = 1.42$; für perfektionistische Gedanken: $d = 1.04$; für Rumination: $d = 1.62$; für generelle adaptive ER: $d = -2.03$). Personen der RMD Gruppe berichteten im Vergleich zu gesunden, zuvor nicht depressiven Personen ebenfalls von häufigerer Selbstkritik ($d = 1.05$) und geringerer mitfühlender Selbstunterstützung ($d = -0.42$) und Selbstbestätigung ($d = -0.89$). Bezüglich der etablierteren Korrelate von MDD unterschieden sich Personen der RMD und NC Gruppen in ihrem Ausmaß an Rumination ($d = 0.72$).

Zur Vorhersage des Depressionsstatus führten wir zwei hierarchische multiple logistische Regressionsanalysen durch. Depressionsstatus diente als abhängige Variable (Modell 1: MDD; NC und Modell 2: RMD; NC). Die etablierteren Korrelate von MDD (d.h. perfektionistische Überzeugungen und Gedanken, Rumination und generelle adaptive ER) wurden als unabhängige Variablen in Schritt 1 aufgenommen. Selbstkritik, mitfühlende Selbstunterstützung und Selbstbestätigung wurden als Prädiktoren in Schritt 2 hinzugefügt. Selbstkritik, mitfühlende Selbstunterstützung und Selbstkritik waren über die etablierteren Korrelate von MDD hinaus mit den Status aktueller MDD (R^2 Change = .07, $p = .01$) und RMD (R^2 Change = .15, $p = .02$) assoziiert. Das gesamte Modell 1 klassifizierte 68.5 % der Personen korrekt als aktuell oder zuvor nicht depressiv. Das gesamte Modell 2 klassifizierte 28.1 % der Personen korrekt als ehemals oder zuvor nicht depressiv. Selbstkritik konnte als signifikanter und eigener Prädiktor für die Status MDD ($b = .19$, $SE = .09$, $\beta = .35$, $p = .04$) und RMD ($b = .69$, $SE = .34$, $\beta = .02$, $p = .05$) bestätigt werden. Daneben war allgemeine adaptive ER ein signifikanter und eigener Prädiktor für den Status aktueller MDD ($b = .69$, $SE = .34$, $\beta = .02$, $p = .05$).

Diskussion. Wie erwartet berichteten sowohl aktuell als auch ehemals depressive Personen im Vergleich zu gesunden, zuvor nicht depressiven Personen von häufigerer Selbstkritik und seltenerer mitfühlender Selbstunterstützung und Selbstbestätigung. Erhöhte Selbstkritik und verringerte mitfühlende Selbstunterstützung und Selbstbestätigung waren über die etablierteren Korrelate

von MDD (d.h. perfektionistische Überzeugungen und Gedanken, Rumination und generelle adaptiver ER) hinaus mit den Status aktueller und ehemaliger MDD assoziiert. Eine Analyse der Zusammenhänge zwischen den Studienvariablen ergab eine einfaktorielle Struktur mit Selbstkritik, perfektionistischen Überzeugungen und Gedanken und Rumination sowie mitfühlender Selbstunterstützung, Selbstbestätigung und genereller adaptiver ER als unterschiedlicher Pole einer Dimension.

Die Befunde stimmen mit der Idee häufiger Selbstkritik und seltener mitfühlende Selbstunterstützung und Selbstbestätigung als stabiler Vulnerabilitätsfaktoren, die über akute Phasen von MDD hinaus bestehen bleiben, überein. Eine Steigerung mitfühlender Selbstunterstützung und Selbstbestätigung könnte vor dem Hintergrund der Ergebnisse dieser Studie bei aktuell und ehemals depressiven Personen zu einer Reduktion von Selbstkritik und einer Verbesserung und Aufrechterhaltung der psychischen Gesundheit beitragen. Eine wesentliche Einschränkung dieser Studie liegt in dem querschnittlichen Design. Experimentelle und längsschnittliche Studien sind nötig um kausale Zusammenhänge zwischen Selbstkritik, mitfühlender Selbstunterstützung sowie Selbstbestätigung und aktueller MDD sowie der Vulnerabilität für MDD weiter zu untersuchen (siehe auch Studien 2 und 3). Insbesondere die Ergebnisse der Faktoren- und Regressionsanalysen sollten darüber hinaus in weiteren Studien mit größeren Stichproben überprüft werden.

4.2 Studie II: Experimentelle Untersuchung der Effektivität mitfühlender Selbstunterstützung bei aktuell, ehemals und zuvor nicht depressiven Personen

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Hintergrund. Defizite in der adaptiven ER und erhöhte negative Affekte werden als Risikofaktoren für die Entstehung, Aufrechterhaltung und explizit auch für Rückfälle von MDD diskutiert (siehe 2.2 bzw. Berking & Wupperman, 2012; Gross & Muñoz, 1995; Joormann & Siemer, 2014). Kompetenzen im Bereich der adaptiven ER sollten Personen dabei helfen, negative Affekte bei Bedarf zu reduzieren und könnten so der Entstehung und Aufrechterhaltung depressiver Episoden entgegenwirken. In der Literatur zu einem gesundheitsförderlichen Umgang mit negativen Affekten werden Akzeptanz und kognitive Neubewertung mit am häufigsten als adaptive ER Strategien diskutiert (z.B. Gross & John, 2003; Hayes et al., 1999). Die Befundlage zu Zusammenhängen zwischen Akzeptanz (z.B. Garnefski & Kraaij, 2006; Martin & Dahlen, 2005; Liverant et al., 2008) sowie kognitiver Neubewertung (z.B. Garnefski & Kraaij, 2006; Gross, 1998) und depressiven Symptomen ist jedoch inkonsistent. Weitere Forschung ist nötig um Strategiein zu identifizieren, die aktuell und ehemals depressiven Personen bei der Reduktion depressiver Stimmung helfen. Mitfühlende Selbstunterstützung wird dabei in der psychologischen Forschung in letzter Zeit verstärkt als eine adaptive ER Strategie diskutiert (siehe 2.3 bzw. z.B. Berking & Whitley, 2014; Diedrich et al., 2014; Gilbert & Irons, 2004; Neff, 2003). Da mitfühlende Selbstunterstützung explizit auf das eigene Leiden aufbaut könnte es sich hierbei um eine Strategie handeln, die, im Gegensatz zu Akzeptanz und kognitiver Neubewertung, insbesondere auch im Umgang mit erhöhten negativen Affekten eingesetzt werden kann (Berking & Whitley, 2014; Diedrich et al., 2014). Bisherige querschnittliche und längsschnittliche Studien stützen erwartungsgemäß negative Zusammenhänge zwischen mitfühlender Selbstunterstützung und depressiven Symptomen in gesunden und ersten klinischen Stichproben (z.B. Krieger et al., 2013; MacBeth & Gumley, 2012; Neff & McGehee, 2010; Neff, 2003; Neff et al., 2007). Eine experimentelle Studie (Diedrich et al., 2014) stützt das Potential mitfühlender Selbstunterstützung zur Reduktion depressiver Symptome bei aktuell depressiven Personen. Keine Studie hat bislang untersucht, inwieweit mitfühlende Selbstunterstützung ehemals depressiven Personen helfen kann negative Affekte, und darüber vermutlich das Risiko für einen Rückfall (siehe 2.2 bzw. z.B. Teasdale, 1988), zu reduzieren.

Diese Studie zielte auf die Untersuchung der Effektivität mitfühlender Selbstunterstützung zur Reduktion depressiver Stimmung bei aktuell, ehemals und gesunden, zuvor nicht depressiven

Personen und im Vergleich zu Akzeptanz und kognitiver Neubewertung ab. Vor dem Hintergrund bisheriger Befunde zu Zusammenhängen zwischen Akzeptanz, kognitiver Neubewertung, mitfühlender Selbstunterstützung und depressiven Symptomen testeten wir die Hypothese, dass mitfühlende Selbstunterstützung zur Reduktion depressiver Stimmung über die Gruppen hinweg mindestens so effektiv ist wie (1) eine Wartebedingung, (2) die Akzeptanz depressiver Stimmung und (3) kognitive Neubewertung.

Methode. Die Stichprobe bestand aus 30 aktuell depressiven Personen (MDD; Durchschnittsalter: 40.93 Jahre, $SD = 11.92$), 30 ehemals depressiven Teilnehmern (engl. remitted depressed individuals, RMD; Durchschnittsalter: 39.50 Jahre, $SD = 12.13$) und 30 gesunden, zuvor nicht depressiven Kontrollpersonen (engl. never depressed controls, NC; Durchschnittsalter: 39.17 Jahre, $SD = 12.42$). Die drei Gruppen waren hinsichtlich des Alters, Geschlechts (66.7 % weiblich) und Bildungsgrads (60.0 % mit Abitur) gematched. Aktuell depressive Personen erfüllten die DSM-IV Kriterien für eine MDD (APA, 2000). Personen der RMD Gruppe hatten in der Vergangenheit mindestens eine depressive Episode ($M = 1.47$, $SD = 1.63$, $Range = 1-3$) und waren zum Studienzeitpunkt seit mindestens zwei Monaten remittiert ($M = 32.87$ Monate, $SD = 37.10$, $Range = 2-132$). Personen der NC Gruppe hatten keine MDD in der Vorgeschichte und erfüllten zum Studienzeitpunkt nicht die Kriterien für eine psychische Störung. Weitere Einschlusskriterien für alle Gruppen umfassten ein Mindestalter von 18 Jahren und ausreichende Deutschkenntnisse. Ausschlusskriterien waren akute Suizidalität, komorbide psychotische, substanzbezogene, bipolare Störungen, Gehirnschäden und andere schwere kognitive Einschränkungen. Abbildung 2 gibt einen Überblick über den Ablauf des Experiments. Infolge der Diagnostik und einer Einführung in das Experiment induzierten wir bei allen Teilnehmern depressive Stimmung. Zur Stimmungsinduktion setzten wir Musik und negative selbstbezogene Aussagen (Velten, 1968) ein. Im Anschluss an die Induktionsphasen wurden alle Teilnehmer instruiert mitfühlende Selbstunterstützung zu praktizieren, negative Affekte zu akzeptieren, die Situation umzubewerten oder zu warten. Wir permutierten Regulationssequenzen zur Kontrolle möglicher Reihenfolgeeffekte. Das Ausmaß an depressiver Stimmung wurde vor und nach den Induktions- und Instruktionsphasen mittels visueller Analogskalen (0 = *überhaupt nicht* bis 100 = *sehr*) erfasst.

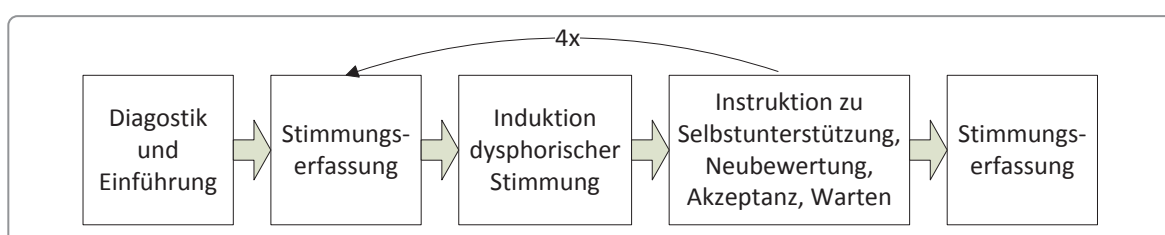


Abbildung 2. Ablauf des Experiments zur Effektivität von Emotionsregulationsstrategien

Ergebnisse. Zur Überprüfung der Stimmungsinduktion führten wir eine 2 x 4 x 3 Varianzanalyse (engl. Analysis of Variance, ANOVA) mit Messwiederholung durch. Zeit (vor der Induktion, nach der Induktion) und Induktionsdurchlauf (erste, zweite, dritte, vierte Induktion) dienten als Innersubjektfaktoren. Gruppe (RMD, MDD, NC) wurde als Zwischensubjektfaktor in die Analyse aufgenommen. Ein signifikanter Effekt für Zeit ($F [2, 87] = 17.36, p < .01$, partielles $\eta^2 = .17$) und insignifikante Haupt- und Interaktionseffekte für Induktionsdurchlauf und Gruppe ($F_s < 2.001.59$ p -Werte $< .15$, partielle η^2 s $< .06$) deuteten auf die Effektivität der Induktionsmethode über Personen und Induktionsdurchläufe hinweg hin.

Zur Testung der Hypothese, dass mitfühlende Selbstunterstützung zur Reduktion depressiver Stimmung mindestens so effektiv ist wie (1) eine Wartebedingung, (2) emotionale Akzeptanz und (3) kognitive Neubewertung führten wir separate 2 x 2 x 3 ANOVAS mit Messwiederholung durch. Zeit (vor der Instruktion, nach der Instruktion) und Strategie (mitfühlende Selbstunterstützung vs. Warten; mitfühlende Selbstunterstützung vs. Akzeptanz; mitfühlende Selbstunterstützung vs. Neubewertung) dienten als Innersubjektfaktoren und Gruppe (RMD, MDD, NC) als Zwischensubjektfaktor. Der Vergleich von mitfühlender Selbstunterstützung und der neutralen Wartebedingung ergab signifikante Effekte für Zeit ($F [1, 87] = 17.08, p < .01$, partielles $\eta^2 = .16$) und Strategie ($F [1, 87] = 4.21, p = .04$, partielles $\eta^2 = .05$). Der Vergleich von mitfühlender Selbstunterstützung und Akzeptanz ergab ebenfalls signifikante Effekte für Zeit ($F [1, 87] = 22.26, p < .01$, partielles $\eta^2 = .20$) und Strategie ($F [1, 87] = 5.02, p = .03$, partielles $\eta^2 = .06$). Der Vergleich von mitfühlender Selbstunterstützung und kognitiver Neubewertung ergab signifikante Effekte für Zeit ($F [1, 89] = 9.38, p < .01$, partielles $\eta^2 = .10$), eine signifikante Interaktion von Zeit und Strategie ($F [1, 87] = 7.81, p < .01$, partielles $\eta^2 = .08$) und eine signifikante Dreifachinteraktion von Zeit, Strategie und Gruppe ($F [2, 87] = 3.59, p = .03$, partielles $\eta^2 = .08$). 2 x 2 ANOVAS mit Messwiederholung und Zeit (vor der Instruktion, nach der Instruktion) und Strategie (mitfühlende Selbstunterstützung vs. Neubewertung) als Innersubjektfaktoren für die einzelnen Gruppen ergaben signifikante Interaktionen von Zeit und Strategie für die Gruppen der RMD ($F [1, 29] = 6.76, p = .02$, partielles $\eta^2 = .19$) und NC ($F [1, 29] = 6.03, p = .02$, partielles $\eta^2 = .17$) Personen.

Diskussion. Die Effektivität mitfühlender Selbstunterstützung überstieg über die Gruppen hinweg Zeit- und spontane Regulationseffekte (Wartebedingung) sowie die Effektivität emotionaler Akzeptanz. Bei ehemals depressiven sowie zum Studienzeitpunkt gesunden und zuvor nicht depressiven Personen war mitfühlende Selbstunterstützung zudem effektiver als kognitive Neubewertung. Bei aktuell depressiven Personen fanden sich keine Unterschiede zwischen mitfühlender Selbstunterstützung und kognitiver Neubewertung.

Die Ergebnisse dieser Studie stimmen mit früheren Befunden zu negativen Zusammenhängen zwischen mitfühlender Selbstunterstützung und depressiven Symptomen in gesunden und ersten klinischen Stichproben überein (z.B. Berking & Whitley, 2014; Diedrich et al., 2014; Gilbert & Irons, 2004; Neff, 2003). Sie gehen über bisherige Befunde hinaus, da sie erste Hinweise auf mitfühlende Selbstunterstützung als einer effektiven Strategie zur Reduktion depressiver Symptome bei ehemals depressiven (depressionsvulnerablen) Personen liefern.

Eine systematische Verbesserung mitfühlender Selbstunterstützung durch gezielte Interventionen (z.B. durch das TEK oder die CFT) könnte aktuell, ehemals und zuvor nicht depressiven Personen dabei helfen, depressive Stimmung und so das Risiko für die Entstehung und Aufrechterhaltung depressiver Episoden zu reduzieren. Bisherige Interventionen zur Behandlung von MDD setzen primär an einer Verbesserung von Akzeptanz und kognitiver Neubewertung an (z.B. Beck, 2011; Hayes, 2004; Hayes et al., 1999). Interventionen, die an einer Verbesserung mitfühlender Selbstunterstützung ansetzen könnten vor dem Hintergrund der Ergebnisse dieser Studie zu einer Steigerung der Effektivität und Nachhaltigkeit der Behandlung von MDD beitragen.

4.3 Studie III: Längsschnittliche Untersuchung verschiedener potentiell relevanter Komponenten der adaptiven Emotionsregulation als Prädiktoren der Reduktion negativen Affekts während der Depressionsbehandlung

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Hintergrund. Defizite in der adaptiven ER und damit assoziierte erhöhte negative Affekte gelten als Risikofaktoren für die Entstehung und Aufrechterhaltung depressiver Episoden (siehe 2.2; z.B. Teasdale, 1988; Teasdale & Barnard, 1993). In dem Bemühen zur Verbesserung der Behandlung von MDD betonen einige Autoren entsprechend die Relevanz einer Steigerung von Kompetenzen im Bereich der adaptiven ER (z.B. Berking et al., 2013; Hofmann et al., 2012). Berking und Kollegen konzeptualisieren adaptive ER als situationsabhängiges Zusammenspiel aus den folgenden neun Komponenten, die in der Literatur als bedeutsam für einen gesundheitsförderlichen Umgang mit negativen Affekten diskutiert werden: Aufmerksamkeit, Klarheit, Körperwahrnehmung, Verstehen, Modifikation, Akzeptanz, Toleranz, mitfühlende Selbstunterstützung und Konfrontationsbereitschaft (siehe Abb. 1 bzw. Berking & Znoj, 2008). Bisherige querschnittliche (Berking, Orth et al., 2008; Berking, Wupperman, et al., 2008; Berking & Znoj, 2008) und längsschnittliche (Berking et al., 2014; Radkovsky et al., 2014) Studien zeigen erwartungsgemäß negative Zusammenhänge zwischen dem Gesamtwert sowie den einzelnen Komponenten dieses Modells und negativem Affekt sowie depressiven Symptomen. Eine systematische Untersuchung prospektiver Effekte des Gesamtwerts sowie einzelner Komponenten des Modells adaptiver ER nach Berking (siehe Abbildung 1 bzw. Berking & Znoj, 2008) auf eine nachfolgende Reduktion negativen Affekts über den Verlauf der Depressionsbehandlung hinweg steht noch aus.

Unter Verwendung latenter Veränderungsmodelle (engl. Latent Change Score, LCS; McArdle, 2009) testeten wir die Hypothese, dass der Gesamtwert adaptiver ER (inklusive Aufmerksamkeit, Klarheit, Körperwahrnehmung, Verstehen, Modifikation, Akzeptanz, Toleranz, mitfühlender Selbstunterstützung und Konfrontationsbereitschaft) eine nachfolgende Reduktion negativen Affekts über den Verlauf der Depressionsbehandlung vorhersagt. Explorative Analysen dienten der Untersuchung prospektiver Zusammenhänge zwischen mitfühlender Selbstunterstützung und weiterer einzelner potentiell relevanter Komponenten der adaptiven ER und negativem Affekt.

Methode. Die Daten wurden in einer Fachklinik für Psychosomatik und Psychotherapie in Deutschland erfasst. Patienten wurden in die Studie aufgenommen, wenn sie die DSM-IV Kriterien für MDD erfüllten, der Teilnahme schriftlich zustimmten, mindestens 18 Jahre alt waren und

ausreichende Deutschkenntnisse besaßen. Explizite Ausschlusskriterien waren Alkohol- oder Drogenabhängigkeiten, psychotische und bipolare Störungen, Gehirnschäden sowie weitere schwerwiegende somatische Störungen. Die finale Stichprobe umfasste 196 Patienten mit der Diagnose einer MDD (Durchschnittsalter: 46.33 Jahre, $SD = 10.70$; 52.2 % weiblich). Der Studienzeitraum umfasste die ersten drei Wochen der stationären Therapie. Während der Studienphase erhielten alle Patienten individuelle (mindestens einmal 50 Minuten pro Woche) und gruppenbasierte (mindestens vier mal 50 Minuten pro Woche) kognitiv-verhaltenstherapeutische Interventionen zur Behandlung von MDD. Diese wurden bei Bedarf durch medikamentöse und zusätzliche Interventionen (z.B. Bewegungstherapie) ergänzt. Interventionen, die explizit an einer Verbesserung der adaptiven ER ansetzen (z.B. Berking, 2010; Berking & Whitley, 2014; Greenberg & Elliot, 2002; Linehan, 1993) waren keine Bestandteile der Behandlung.

ER und negativer Affekt wurden zu vier Zeitpunkten (nach der Aufnahme und jeweils am Ende der ersten drei Wochen) erhoben. Der Fragebogen zur Selbsteinschätzung Emotionaler Kompetenzen (SEK-27; engl. Emotion Regulation Skills Questionnaire, ERSQ; Berking & Znoj, 2008) diente der Erfassung des Gesamtwerts sowie der einzelnen Komponenten des Modells adaptiver ER nach Berking (siehe Abbildung 1 bzw. Berking & Znoj, 2008). Der Gesamtwert der Affektskalen der emotionsspezifischen Fassung des SEK (SEK-ES/ERSQ-ES; Ebert, Christ & Berking, 2013) diente der Erfassung des Ausmaßes an negativem Affekt. Auf einer 10-stufigen Ratingskala (0 = *gar nicht* bis 10 = *sehr stark*) geben Personen im SEK-ES das Ausmaß an Stress/Anspannung, Angst, Ärger, Traurigkeit, depressiver Stimmung und weiterer negativer Affekte an.

Im Mittelpunkt statistischer Auswertungsmethoden standen bivariate LCS Modelle. Einflüsse von ER auf nachfolgende Veränderungen negativen Affekts (γ_{ER}), sowie von negativem Affekt auf nachfolgende Veränderungen in der adaptiven ER (γ_{NA}) wurden dabei in demselben Modell geschätzt. Veränderungswerte (in unseren Analysen $\Delta ER/\Delta NA$) werden in LCS Modellen als Funktion eines konstanten Veränderungswerts (slope), der Veränderungen über die Zeit abbildet, eines proportionalen Parameters (β), der Einflüsse derselben Variable zu einem früheren Zeitpunkt darstellt, und eines Kopplungsparameters (γ), der Einflüsse der jeweils anderen Variable zu einem früheren Zeitpunkt darstellt, definiert. Abbildung 3 zeigt das Modell, das dieser Studie zugrunde lag. Eine nähere Beschreibung von LCS Modellen findet sich beispielsweise bei McArdle (2009).

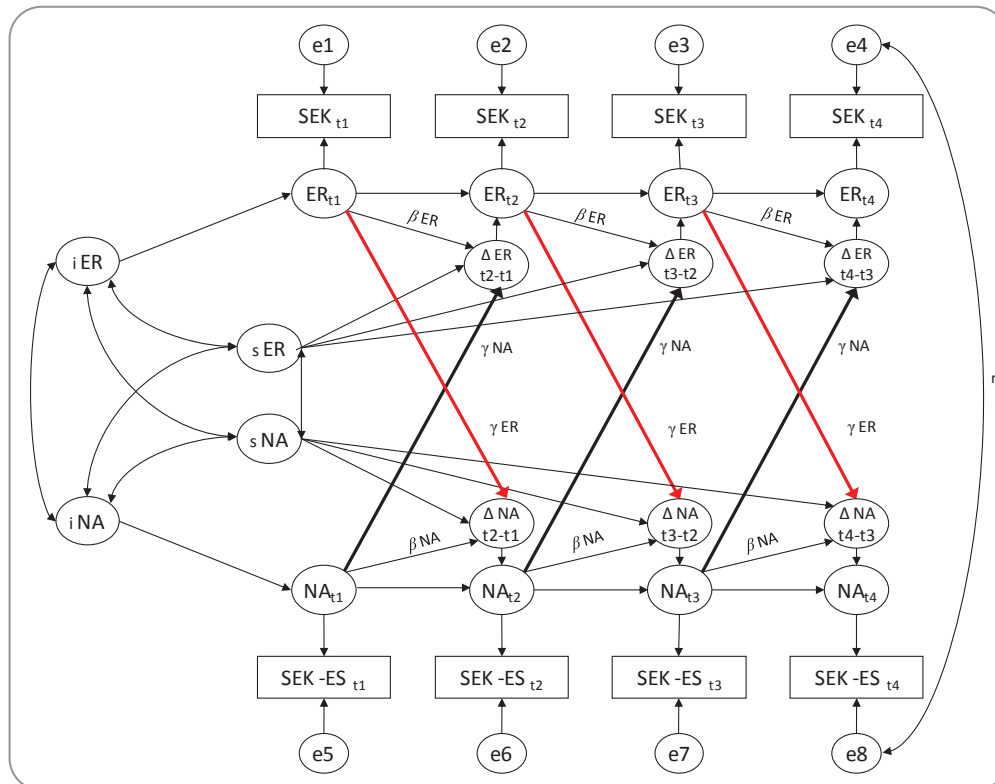


Abbildung 3. Bivariates latentes Veränderungsmodell zu Emotionsregulation und negativem Affekt. SEK = Fragebogen zur Selbsteinschätzung Emotionaler Kompetenzen. ES = Emotionsspezifisch. ER = Emotionsregulation. NA = Negativer Affekt. i = Intercept. s = Slope. Δ = Veränderungswert.

Neben dem Gesamtwert des SEK-27 testeten wir in explorativen Analysen auch LCS Modelle mit den einzelnen Subskalen (d.h. Aufmerksamkeit, Klarheit, Körperwahrnehmung, Verstehen, Modifikation, Akzeptanz, Toleranz, mitfühlende Selbstunterstützung und Konfrontationsbereitschaft) und negativem Affekt. Zur Kontrolle einer möglichen Alphafehler-Kumulierung wendeten wir in explorativen Analysen die Benjamini-Hochberg Korrektur an (Benjamini & Hochberg, 1995).

Ergebnisse. Voranalysen zeigten negative querschnittliche Korrelationen zwischen ER und negativem Affekt zu allen vier Messzeitpunkten (Pearsons r für den Gesamtwert adaptiver ER = -.42 bis -.56, p -Werte alle < .01). Eine Zunahme des Gesamtwerts adaptiver ER über die Zeit ($ER_{t4} - ER_{t1}$) war mit einer Abnahme an negativem Affekt ($NA_{t4} - NA_{t1}$) assoziiert (Pearson r der Differenzwerte = -.34, $p < .01$). Entsprechende negative Zusammenhänge zwischen Veränderungen in ER und dem Ausmaß an negativem Affekt zeigten sich größtenteils auch für die einzelnen Subskalen des SEK-27. Eine Verbesserung der korrekten Interpretation von Körperwahrnehmungen war nicht signifikant mit einer Abnahme an negativem Affekt assoziiert.

LCS Modelle mit dem Gesamtwert ($\chi^2 = 36.73$, $df = 22$, $p = .03$; RMSEA = .06, $CI_{90} = .02 - .09$; $p_{close} = .31$; CFI = .98) und den einzelnen Skalen des SEK-27 ($\chi^2 = 28.75 - 46.06$, $df = 22$, $p = .15 - .00$; RMSEA

= .04- .08, $p_{\text{close}} = .09- .64$; CFI = .97- .99) zeigten durchweg gute Modellfits. Wie erwartet sagte der Gesamtwert adaptiver ER eine nachfolgende Reduktion negativen Affekts vorher ($\gamma_{\text{ER}} = -.75$, $S.E. = .23$, $p < .01$); der umgekehrte Kopplungseffekt von negativem Affekt auf Veränderungen in der adaptiven ER war nicht signifikant ($\gamma_{\text{NA}} = -.04$, $S.E. = .05$, $p > .05$). Explorative Analysen ergaben signifikante Kopplungseffekte von ER auf eine nachfolgende Reduktion negativen Affekts für folgende Subskalen des SEK-27: Verstehen ($\gamma_{\text{ER}} = -.40$, $S.E. = .15$, $p < .01$), Modifikation ($\gamma_{\text{ER}} = -.56$, $S.E. = .16$, $p < .01$), Akzeptanz ($\gamma_{\text{ER}} = -.72$, $S.E. = .22$, $p < .01$), Toleranz ($\gamma_{\text{ER}} = -.72$, $S.E. = .18$, $p < .01$), mitfühlende Selbstunterstützung ($\gamma_{\text{ER}} = -.58$, $S.E. = .16$, $p < .01$) und Konfrontationsbereitschaft ($\gamma_{\text{ER}} = -.61$, $S.E. = .15$, $p < .01$). Aufmerksamkeit, Körperwahrnehmung und Klarheit waren nicht signifikant mit einer nachfolgenden Reduktion negativen Affekts assoziiert.

Vergleiche genesteter Modelle für den Gesamtwert und Subskalen des SEK-27 mit signifikanten γ_{ER} Kopplungseffekten in den vorangegangenen LCS Analysen (d.h. Verstehen, Modifikation, Akzeptanz, Toleranz, mitfühlende Selbstunterstützung und Konfrontationsbereitschaft) ergaben eine signifikante Verbesserung des Modellfits für bidirektionale Modelle ($\gamma_{\text{ER}} \neq 0$, $\gamma_{\text{NA}} \neq 0$; $\Delta \chi^2/\Delta df=16.32/2$, $p < .01$ für den Gesamtwert adaptiver ER und $11.36-18.64/2$, p -Werte $< .01$ für die einzelnen Skalen) oder unidirektionale Modelle mit einem Kopplungsparameter von ER auf die nachfolgende Veränderung negativen Affekts ($\gamma_{\text{ER}} \neq 0$, $\gamma_{\text{NA}} = 0$; $\Delta \chi^2/\Delta df=15.86/1$, $p < .01$ für den Gesamtwert adaptiver ER und $7.19-17.75/1$, p -Werte $< .01$ für die einzelnen Skalen) im Vergleich zu einem Modell, in dem ER und negativer Affekt voneinander unabhängig sind ($\gamma_{\text{ER}} = 0$, $\gamma_{\text{NA}} = 0$). Das unidirektionale Modell mit einem Kopplungseffekt von negativem Affekt auf ER ($\gamma_{\text{ER}} = 0$, $\gamma_{\text{NA}} \neq 0$) war nur für die Komponente Verstehen besser als das Unabhängigkeitsmodell ($\gamma_{\text{ER}} = 0$, $\gamma_{\text{NA}} = 0$; $\Delta \chi^2/\Delta df=5.5/1$, $p < .01$).

Diskussion. Die Ergebnisse stützen den Gesamtwert adaptiver ER (inklusive Aufmerksamkeit, Klarheit, Körperwahrnehmung, Verstehen, Modifikation, Akzeptanz, Toleranz, mitfühlender Selbstunterstützung und Konfrontationsbereitschaft) als Prädiktor für eine nachfolgende Reduktion negativen Affekts über den Verlauf der Depressionsbehandlung. Zwischen den verschiedenen, Komponenten der adaptiven ER fanden sich beträchtliche Unterschiede. Folgende einzelne Komponenten waren signifikant mit einer nachfolgenden Reduktion negativen Affekts assoziiert: das Verstehen affektiver Zustände, die selbsteingeschätzte Fähigkeit zur Modifikation negativer Affekte, emotionale Akzeptanz und Toleranz, mitfühlende Selbstunterstützung sowie eine zielbezogene Konfrontationsbereitschaft mit belastenden Situationen. Interventionen, die an einer Verbesserung relevanter Komponenten der adaptiven ER ansetzen, könnten zu einer Reduktion negativen Affekts und damit zu einer Verringerung des Risikos für die Entstehung und Aufrechterhaltung depressiver Episoden beitragen (siehe 2.2, Studie 4).

4.4 Studie IV: Interventionsstudie zur Reduktion depressiver Symptome durch eine systematische Verbesserung der adaptiven Emotionsregulation

Zitation: Ehret, A. M., Kowalsky, J., Rief, W., Hiller, W. & Berking, M. (2014). Reducing symptoms of major depressive disorder through a systematic training of general emotion regulation skills: protocol of a randomized controlled trial. *BMC Psychiatry*, 14: 20. doi: 10.1186/1471-244X-14-20

Hintergrund. Befunde aus bisherigen querschnittlichen, längsschnittlichen und experimentellen Studien (siehe z.B. Studien 1 bis 3) deuten auf das Potential mitfühlender Selbstunterstützung und weiterer Komponenten der adaptiven ER zur Reduktion depressiver Symptome hin. Das TEK setzt zur Verbesserung der psychischen Gesundheit explizit und ausschließlich an einer Verbesserung der adaptiven ER entsprechend des Modells adaptiver ER nach Berking (siehe Abbildung 1 bzw. Berking & Znoj, 2008) an. Vorläufige Untersuchungen stützen das TEK als ein effektives Programm zur Verbesserung der adaptiven ER und psychischer Gesundheit. Personen, bei denen einige Stunden einer KVT durch eine Kurzfassung des TEK ersetzt wurden zeigten dabei eine stärkere Zunahme potentiell relevanter Komponenten der adaptiven ER (inklusive Aufmerksamkeit, Klarheit, Körperwahrnehmung, Verstehen, Modifikation, Akzeptanz, Toleranz, mitfühlender Selbstunterstützung und Konfrontationsbereitschaft) sowie eine stärkere Abnahme negativer Affekte und weiterer depressiver Symptomen als Personen, die ausschließlich kognitiv-verhaltenstherapeutische Interventionen erhielten (Berking et al., 2013; Berking, Wupperman et al., 2008).

In einer randomisiert-kontrollierten Studie soll getestet werden, inwieweit eine Verbesserung der psychischen Gesundheit (inklusive einer Abnahme depressiver Symptome) infolge des TEK auf eine Verbesserung der adaptiven ER (inklusive Aufmerksamkeit, Klarheit, Körperwahrnehmung, Verstehen, Modifikation, Akzeptanz, Toleranz, mitfühlender Selbstunterstützung und Konfrontationsbereitschaft) zurückgeht (Stand-Alone Effekte). Darüber hinaus soll getestet werden, inwieweit Effekte des TEK mit der Wirksamkeit anderer Interventionen wie der KVT für MDD zusammenhängen (Augmentation Effekte). ER und Indikatoren psychischer Gesundheit (depressive Symptome, Wohlbefinden, positiver und negativer Affekt sowie Angstsymptome) sollen hierfür zu mehreren Zeitpunkten und mittels unterschiedlicher Messverfahren (Selbstbericht, Beobachterrating, ambulantes Assessment, experimentelle Untersuchungen, Analyse von Haarsteroiden) über den Verlauf einer Gruppen- und einer anschließenden KVT für MDD Phase erhoben und zwischen Teilnehmern der TEK Gruppe, einer aktiven Kontroll- und einer Wartekontrollgruppe verglichen werden. Explorative Analysen sollen explizit auch die Relevanz einzelner potentiell relevanter Komponenten der adaptiven ER (d.h. Aufmerksamkeit, Klarheit,

Körperwahrnehmung, Verstehen, Modifikation, Akzeptanz, Toleranz, mitfühlender Selbstunterstützung und Konfrontationsbereitschaft) für Therapieeffekte des TEK untersuchen.

Methoden. Die Studie ist als prospektive, randomisiert-kontrollierte Studie konzipiert und soll in ambulanten Behandlungszentren in Kassel, Mainz und Marburg durchgeführt werden. Einschlusskriterien umfassen MDD als Primärdiagnose, ein Mindestalter von 18 Jahren und ausreichende Deutschkenntnisse. Ausschlusskriterien beinhalten akute Suizidalität, substantielle Sekundärgewinne (z.B. aufgrund der Aufwandsentschädigung), andere laufende psychotherapeutische Behandlungen, komorbide psychotische, substanzbezogene, bipolare Störungen, organische Gehirnschäden oder andere schwere medizinische Krankheiten sowie schwere kognitive Einschränkungen. Zur Diagnostik soll das Strukturierte Klinische Interview für DSM-IV (SKID; Wittchen, Zaudig & Fydrich, 1997) eingesetzt werden. Die Rekrutierung soll konsekutiv erfolgen, wobei in eine Kohorte 10-15 Personen aufgenommen werden sollen. Die angestrebte Teilnehmerzahl beträgt 120 ($n = 40$ pro Bedingung). Für eine achtwöchige Gruppenphase sollen die Teilnehmer nach Einschluss zufällig auf eine der folgenden drei Bedingungen aufgeteilt werden: (1) TEK (18 Stunden à 50 Minuten), (2) aktive Kontrollgruppe (18 Stunden à 50 Minuten), (3) Wartebedingung. Im Anschluss an die Gruppenphase und eine vierwöchige Wartephase erhalten alle Teilnehmer eine standardisierte, manualisierte KVT für MDD nach Hautzinger (2003) (16 Stunden à 50 Minuten).

Erhebungen sollen zu zehn Zeitpunkten über den Verlauf der Studie stattfinden: vor (t_1), während (t_2 - t_4) und nach (t_5) der Gruppenphase sowie vor (t_6), während (t_7 - t_9) und nach (t_{10}) der Einzeltherapie. Erhebungen umfassen die deutschen Versionen mehrerer Selbstberichtfragebogen, Beobachterratings und Interviews mit etablierten psychometrischen Eigenschaften. Das primäre Outcome soll die depressive Symptomschwere, erfasst durch die deutsche Version der Hamilton Rating Scale for Depression (HRSD; Riedel et al., 2010), sein. Weitere Instrumente sollen insbesondere der Erfassung sekundärer Ergebnisvariablen (Wohlbefinden, positiver und negativer Affekt sowie Angstsymptome), von Kompetenzen im Bereich der adaptiven ER und konfundierender Variablen (Selbstwirksamkeit, Perfektionismus und Selbstwert) dienen. Die Erhebungen sollen durch ambulante Assessments (Shiffman, Stone & Hufford, 2008) und, in einer Teilstichprobe, durch experimentelle Untersuchungen adaptiver ER Strategien und die Analyse von Haarsteroiden als biologischer Depressionsparameter ergänzt werden. Abbildung 4 gibt einen Überblick über das Design und die Messzeitpunkte der geplanten Interventionsstudie.

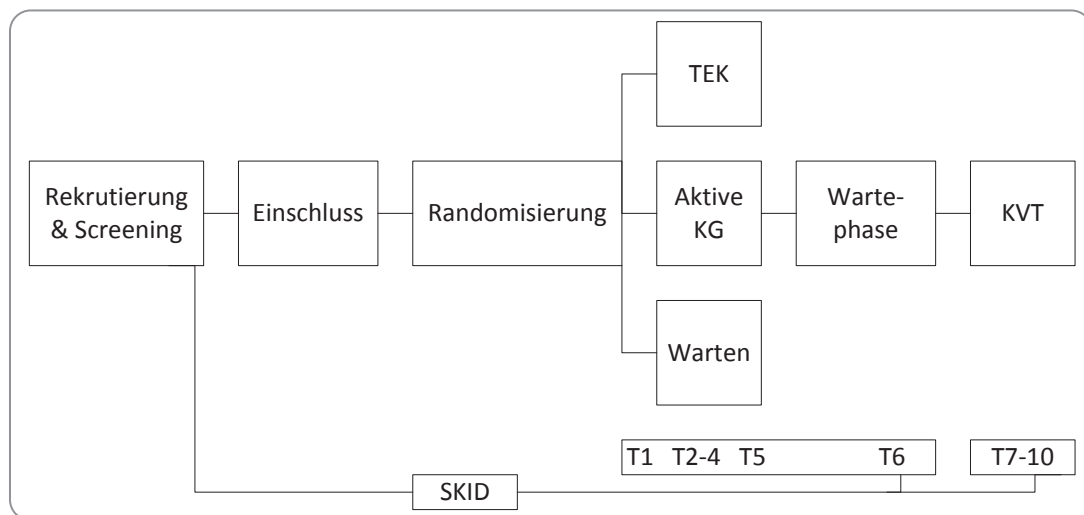


Abbildung 4. Überblick über das Design und die Messzeitpunkte der Interventionsstudie. KG = Kontrollgruppe. TEK = Training Emotionaler Kompetenzen. KVT = Kognitive Verhaltenstherapie. SKID = Strukturiertes Klinisches Interview für DSM-IV.

Im Mittelpunkt der statistischen Auswertung sollen gemischte Modelle stehen. Wenn das TEK eine Verbesserung der adaptiven ER und eine Abnahme der depressiven Symptombelastung fördert, sollten Steigungen von Wachstumskurven für ER und depressive Symptome während der Gruppenphase (t1-t5) und der anschließenden KVT Phase (t6-t10) in der TEK-Bedingung signifikant größer sein als in beiden Kontrollgruppen. Längsschnittliche Mediationsmodelle (Krull & MacKinnon, 2001) sollen testen, inwieweit eine Abnahme depressiver Symptome in der TEK Bedingung auf eine Zunahme der adaptiven ER zurückgeht. Die komorbide Symptombelastung und die konfundierenden Variablen (d.h. Selbstwirksamkeit, Perfektionismus und Selbstwert) sollen als Moderatorvariablen in die Analysen mit aufgenommen werden. Um einen Einblick in die Relevanz der einzelnen Komponenten der adaptiven ER (d.h. Aufmerksamkeit, Klarheit, Körperwahrnehmung, Verstehen, Modifikation, Akzeptanz, Toleranz, mitfühlender Selbstunterstützung und Konfrontationsbereitschaft) für Therapieeffekte der TEK zu erhalten sollen die Analysen für den Gesamtwert sowie die einzelnen Skalen des SEK-27 getrennt durchgeführt werden. Darüber hinaus sollen Mediationsanalysen testen, inwieweit Therapieeffekte des TEK auf die Zunahme mitfühlender Selbstunterstützung und weiterer einzelner Komponenten der adaptiven ER zurückgehen. Neben der depressiven Symptomatik sollen die dargestellten Analysen auch für die sekundären Ergebnisvariablen (d.h. Wohlbefinden, positiver und negativer Affekt sowie Angstsymptome) durchgeführt werden. Gemeinsamkeiten und Unterschiede zwischen den eingesetzten Erhebungsverfahren (Selbstbericht, Beobachterrating, ambulantes Assessment, experimentelle Untersuchungen, Analyse von Haarsteroiden) sollen in Multitrait-Multimethod-Analysen getestet werden.

Diskussion. Ergebnisse dieser randomisiert-kontrollierten Studie mit einer Warte- und einer aktiven Kontrollbedingung werden zeigen, inwieweit eine Verbesserung von Kompetenzen im Bereich der adaptiven ER durch das TEK bei Personen mit MDD zu einer Verbesserung der psychischen Gesundheit, inklusive einer Reduktion depressiver Symptome, beiträgt. Das zweistufige Design (Gruppenphase, KVT für MDD) wird Einblicke in die eigenständige Wirksamkeit des TEK (Stand-Alone Effekte) sowie in Effekte einer Steigerung der adaptiven ER auf die Wirksamkeit der KVT für MDD (Augmentation Effekte) ermöglichen. Explorative Analysen und Mediationsanalysen werden zeigen, inwieweit Therapieeffekte des TEK auf Verbesserungen in mitfühlender Selbstunterstützung und weiterer einzelner potentiell relevanter Komponenten der adaptiven ER (d.h. Aufmerksamkeit, Klarheit, Körperwahrnehmung, Verstehen, Modifikation, Akzeptanz, Toleranz und Konfrontationsbereitschaft) zurückgehen. Vor dem Hintergrund methodischer Stärken (v.a. mehrere Messzeitpunkte und Erhebungsmethoden) könnte diese Studie wertvolle Einblicke in Defizite in der adaptiven ER, die MDD zugrundeliegen und diese aufrechterhalten, gewähren.

5 ZUSAMMENFASSENDE DISKUSSION UND AUSBLICK

Defizite in der adaptiven ER und damit assoziierte erhöhte negativer Affekte gelten als Risikofaktoren für die Entstehung und Aufrechterhaltung depressiver Episoden (siehe 2.2 bzw. Berking & Wupperman, 2012; Gross & Muñoz, 1995; Joormann & Siemer, 2014). Eine Verbesserung von Kompetenzen im Bereich der adaptiven ER sollte Personen helfen, negative Affekte bei Bedarf herunter zu regulieren und könnte so der Entstehung, Aufrechterhaltung und Wiederkehr von MDD entgegenwirken. Ziel der vorliegenden Dissertation war die Identifikation von Ansatzpunkten zur Verbesserung der adaptiven ER bei aktuell und ehemals depressiven Personen. Ein Schwerpunkt wurde dabei auf das Konstrukt der mitfühlenden Selbstunterstützung gelegt.

In einer querschnittlichen Studie untersuchten wir, inwieweit sich aktuell, ehemals sowie zum Studienzeitpunkt gesunde und zuvor nicht depressive Personen in ihrer Häufigkeit von Selbstkritik, mitfühlender Selbstunterstützung und Selbstbestätigung unterscheiden. Häufige Selbstkritik sowie seltene mitfühlende Selbstunterstützung und Selbstbestätigung wurden dabei als stabile Vulnerabilitätsfaktoren, die über akute Phasen von MDD hinaus bestehen bleiben, getestet. Wie erwartet berichteten aktuell und ehemals depressive Personen im Vergleich zu gesunden, zuvor nicht depressiven Personen von häufigerer Selbstkritik und seltenerer mitfühlender Selbstunterstützung und Selbstbestätigung (Studie 1).

In einer experimentellen Studie untersuchten wir die Effektivität mitfühlender Selbstunterstützung zur Reduktion depressiver Stimmung bei aktuell, ehemals und gesunden, zuvor nicht depressiven Personen. Mitfühlende Selbstunterstützung wurde in diesem Zusammenhang mit einer Wartebedingung, emotionaler Akzeptanz und kognitiver Neubewertung verglichen. Wie vor dem Hintergrund bisheriger Befunde zu Zusammenhängen zwischen Akzeptanz, kognitiver Neubewertung, mitfühlender Selbstunterstützung und depressiven Symptomen (z.B. Diedrich et al., 2014; Gross, 1998; Liverant et al., 2008) erwartet, war mitfühlende Selbstunterstützung über die Gruppen hinweg effektiver als eine Wartebedingung und emotionale Akzeptanz. Bei ehemals und zuvor nicht depressiven Personen war mitfühlende Selbstunterstützung zudem effektiver als kognitive Neubewertung. Für aktuell depressive Personen zeigte sich kein Unterschied zwischen mitfühlender Selbstunterstützung und kognitiver Neubewertung (Studie 2).

In einer längsschnittlichen Studie untersuchten wir Zusammenhänge zwischen unterschiedlichen Komponenten des Modells adaptiver ER nach Berking (siehe Abbildung 1 bzw. Berking & Znoj, 2008) und einer nachfolgenden Reduktion negativen Affekts über den Verlauf der Depressionsbehandlung. Wie erwartet sagte der Gesamtwert potentiell relevanter Komponenten der adaptiven ER (inklusive Aufmerksamkeit, Klarheit, Körperwahrnehmung, Verstehen,

Modifikation, Akzeptanz, Toleranz, mitfühlender Selbstunterstützung und Konfrontationsbereitschaft) eine nachfolgende Reduktion negativen Affekts vorher. In explorativen Analysen konnten mitfühlende Selbstunterstützung und folgende weitere Komponenten als Prädiktoren der Stimmungsverbesserung gestützt werden: das Verstehen affektiver Zustände, die selbsteingeschätzte Fähigkeit zur Modifikation negativer Affekte, emotionale Akzeptanz und Toleranz sowie die zielbezogene Konfrontationsbereitschaft mit belastenden Situationen (Studie 3).

Aufbauend auf die Ergebnisse der Studien 1 bis 3 soll in einer randomisiert-kontrollierten Studie getestet werden, inwieweit eine Verbesserung der adaptiven ER (inklusive Aufmerksamkeit, Klarheit, Körperwahrnehmung, Verstehen, Modifikation, Akzeptanz, Toleranz, mitfühlender Selbstunterstützung und Konfrontationsbereitschaft) bei Personen mit MDD zu einer Verbesserung der psychischen Gesundheit (inklusive einer Abnahme der depressiven Symptombelastung) beiträgt (Stand-Alone Effekte). Darüber hinaus sollen Effekte einer Verbesserung der adaptiven ER auf die Wirksamkeit einer nachfolgenden KVT für MDD (Augmentation Effekte) getestet werden. Es wird erwartet, dass die psychische Gesundheit und Kompetenzen in der adaptiven ER bei Personen der TEK Bedingung stärker zunehmen als bei Personen der aktiven Kontroll- und einer Wartekontrollbedingung. Die Verbesserung der psychischen Gesundheit von Teilnehmern des TEK sollte dabei auf eine Verbesserung der adaptiven ER zurückgehen. In explorativen Analysen soll die Relevanz einzelner potentiell relevanter Komponenten der adaptiven ER (inklusive Aufmerksamkeit, Klarheit, Körperwahrnehmung, Verstehen, Modifikation, Akzeptanz, Toleranz, mitfühlender Selbstunterstützung und Konfrontationsbereitschaft) für Therapieeffekte des TEK untersucht werden (Studie 4). Ein Überblick über die Fragestellungen, Hypothesen und das Eintreffen der Hypothesen findet sich in Tabelle 2. Die Ergebnisse der Studie 4 stehen noch aus.

Tabelle 2

Entscheidung über das Eintreffen der Hypothesen

Fragestellung	Hypothese	Verifikation
Wie unterscheiden sich aktuell, ehemals und gesunde, zuvor nicht depressive Personen in ihrer Häufigkeit von Selbstkritik, mitfühlender Selbstunterstützung und Selbstbestätigung? (Studie 1)	Im Vergleich zu zuvor nicht depressiven Personen verwenden aktuell und ehemals depressive Personen häufiger Selbstkritik und seltener mitfühlende Selbstunterstützung und Selbstbestätigung.	✓
Wie effektiv ist mitfühlende Selbstunterstützung zur Reduktion depressiver Stimmung bei aktuell depressiven, ehemals depressiven und gesunden, zuvor nicht depressiven Personen sowie im Vergleich zu (1) einer neutralen Wartebedingung, (2) emotionaler Akzeptanz und (3) kognitiver Neubewertung? (Studie 2)	Mitfühlende Selbstunterstützung ist in der Reduktion depressiver Stimmung über die Gruppen hinweg mindestens so effektiv wie (1) eine Wartebedingung, (2) emotionale Akzeptanz und (3) kognitive Neubewertung.	✓
Wie hängt adaptive ER (inklusive Aufmerksamkeit, Klarheit, Körperwahrnehmung, Verstehen, Modifikation, Akzeptanz, Toleranz, mitfühlender Selbstunterstützung und Konfrontationsbereitschaft) mit einer nachfolgenden Reduktion negativen Affekts über den Verlauf der Depressionsbehandlung zusammen? (Studie 3)	Adaptive ER sagt eine nachfolgende Reduktion negativen Affekts während der Depressionsbehandlung vorher.	✓

5.1 Limitationen

Bei der Interpretation der Ergebnisse sind neben Stärken der Studien auch wichtige Einschränkungen zu berücksichtigen. Bezüglich der Stichproben liegen Stärken in der Verwendung sorgfältig diagnostizierter, klinischer Stichproben, in der Berücksichtigung aktueller sowie ehemals depressiver (depressionsvulnerabler) Personen und in dem Matching aktuell, ehemals und gesunder, zuvor nicht depressiver Personen hinsichtlich relevanter Charakteristika. Einschränkend ist zu erwähnen, dass die Stichprobengrößen der Gruppen aktuell, ehemals und gesunder, zuvor nicht depressiver Personen in den Studien 1 und 2 relativ klein waren ($n =$ jeweils 30). In der prospektiven Untersuchung (Studie 3) wurden ausschließlich aktuell depressive Personen untersucht. Längsschnittliche Untersuchungen des Potentials mitfühlender Selbstunterstützung (und weiterer potentiell relevanter Komponenten der adaptiven ER wie Aufmerksamkeit, Klarheit, Körperwahrnehmung, Verstehen, Modifikation, Akzeptanz, Toleranz und Konfrontationsbereitschaft) zur Reduktion des Risikos für die Entstehung oder Wiederkehr von MDD stehen noch aus. Um mögliche Einflüsse von Scarring Effekten zu vermeiden sollten zukünftige Studien, die Defizite in der adaptiven ER als Risikofaktoren für die Entstehung depressiver Episoden untersuchen dabei auch vulnerable, aber zuvor nicht depressive Personen berücksichtigen (z.B. Töchter depressiver Mütter; Joormann, Cooney, Henry & Gotlib, 2012; Joormann, Gilbert & Gotlib, 2010).

Eine wesentliche Einschränkung der Studien 1 bis 3 liegt zudem in der ausschließlichen Verwendung von Selbstberichtsdaten. In der geplanten Evaluationsstudie des TEK (Studie 4) sollen ER und depressive Symptome sowie weitere Indikatoren der psychischen Gesundheit (Wohlbefinden, positiver und negativer Affekt sowie Angstsymptome) mittels unterschiedlicher Methoden (Selbstbericht, Beobachterrating, ambulantes Assessment, experimentelle Untersuchungen, Analyse von Haarsteroiden) erfasst werden. Diese Studie könnte Einblicke in Zusammenhänge zwischen ER und psychischer Gesundheit gewähren und einige Limitationen von Selbstberichtsdaten wie kognitive Verzerrungen durch retrospektive Testungen und soziale Erwünschtheit überwinden. Multitrait-Multimethod Analysen könnten dabei helfen, Gemeinsamkeiten und Unterschiede zwischen unterschiedlichen Messverfahren aufzeigen.

Kritisiert werden kann an der vorliegenden Arbeit darüber hinaus die Unterscheidung zwischen adaptiven (z.B. mitfühlende Selbstunterstützung, Akzeptanz und kognitive Neubewertung) und maladaptiven (z.B. Selbstkritik und Rumination) Reaktionen auf negative Affekte. Diese Unterscheidung ist stark vereinfacht und unterschlägt die Bedeutung eines flexiblen, kontextabhängigen Umgangs mit negativen Affekten für die psychische Gesundheit (z.B. Berking & Whitley, 2014; Bonnano et al., 2004). Weitere Studien sollten mittels Moderationsanalysen Bedingungen identifizieren unter denen potentiell adaptive ER Strategien besonders wirksam sind. Diese Studien

könnten einen Beitrag zur Aufklärung inkonsistenter Befunde für Zusammenhänge zwischen Akzeptanz (z.B. Garnefski & Kraaij, 2006; Martin & Dahlen, 2005; Liverant et al., 2008) sowie kognitiver Neubewertung (z.B. Garnefski & Kraaij, 2006; Gross, 1998) und depressiven Symptomen liefern. Moderationsanalysen könnten dabei explizit auch Zusammenhänge zwischen einzelnen Komponenten und Strategien der adaptiven ER untersuchen und testen, inwieweit mitfühlende Selbstunterstützung den Einsatz weiterer adaptiver ER Prozesse erleichtert (z.B. Berking & Whitley, 2014; Diedrich et al., 2014).

5.2 Theoretische und klinisch-praktische Implikationen

Aus dieser Arbeit lassen sich einige theoretische und klinisch-praktische Implikationen ableiten. Befunde zu negativen Zusammenhängen zwischen dem Gesamtwert sowie einzelnen Komponenten des Modells adaptiver ER nach Berking (siehe Abbildung 1 bzw. Berking & Znoj, 2008) und negativem Affekt (siehe Studie 3) reihen sich in eine Vielzahl von Studien ein, die die Validität dieses Modells stützen (für einen Überblick siehe Berking & Schwarz, 2014). Negative Zusammenhänge mit einer nachfolgenden Reduktion negativen Affekts über den Verlauf der Depressionsbehandlung (Studie 3) stimmen darüber hinaus mit der Relevanz von Defiziten in der adaptiven ER für die Aufrechterhaltung von MDD überein (z.B. Berking & Wupperman, 2012; Joormann & Siemer, 2014). Ergebnisse aus explorativen Analysen deuten auf beträchtliche Unterschiede zwischen den einzelnen Komponenten des Modells hin. Folgende Komponenten waren besonders mit einer nachfolgenden Reduktion negativen Affekts assoziiert: das Verstehen affektiver Zustände, die selbsteingeschätzte Fähigkeit zur Modifikation negativer Affekte, emotionale Akzeptanz und Toleranz, mitfühlende Selbstunterstützung sowie eine zielbezogene Konfrontationsbereitschaft mit belastenden Situationen (Studie 3). Diese Befunde passen zu der Betonung der Relevanz von Kompetenzen im Bereich der Modifikation und Akzeptanz/Toleranz in dem Modell adaptiver ER nach Berking (siehe Abbildung 1, 2.3 bzw. Berking, 2010; Berking, Poppe, Luhmann, Wupperman, Jaggi, & Seifritz, 2012; Berking & Whitley, 2014; Berking & Znoj, 2008). Positive Befunde für mitfühlende Selbstunterstützung passen zu einem kürzlich verstärkten Fokus der psychologischen Forschung zu einem gesundheitsförderlichen Umgang mit negativen Affekten auf diese Strategie (z.B. Berking & Whitley, 2014; Neff, 2003).

Mitfühlende Selbstunterstützung wird in der Literatur als eine adaptive Alternative zu Selbstkritik diskutiert (z.B. Gilbert et al., 2004). In einer faktorenanalytischen Untersuchung bildeten mitfühlende Selbstunterstützung und Selbstkritik in dieser Arbeit (Studie 1) entsprechend unterschiedliche Pole derselben Dimension. Während Selbstkritik als Risikofaktor für MDD gilt (z.B. Gilbert et al., 2004; Whelton & Greenberg, 2005), wird mitfühlende Selbstunterstützung als eine adaptive ER Strategie diskutiert, die dabei hilft, negative Affekte bei Bedarf zu reduzieren und die so der

Entstehung und Aufrechterhaltung depressiver Episoden entgegenwirken sollte (siehe 2.2 bzw. z.B. Neff, 2003). Ergebnisse dieser Arbeit stützen entsprechende positive/negative Assoziationen zwischen Selbstkritik/mitfühlender Selbstunterstützung und MDD (Studie 1). Seltener mitfühlende Selbstunterstützung bei ehemals depressiven Personen im Vergleich zu gesunden, zuvor nicht depressiven Personen (Studie 1) stimmt mit der Hypothese überein, dass Defizite in der adaptiven ER über akute Phasen von MDD hinaus stabile Risikofaktoren für einen Rückfall darstellen (z.B. Ehring et al., 2008, 2010; Gross & Muñoz, 1995; Teasdale, 1988). Ergebnisse der experimentellen Untersuchung dieser Arbeit (Studie 2) stützen das Potential mitfühlender Selbstunterstützung zur Reduktion negativer Affekte. Obwohl aktuell und ehemals depressive Personen mitfühlende Selbstunterstützung spontan seltener anwenden als zuvor nicht depressive Personen (Studie 1), konnte diese Strategie über die Gruppen hinweg und im Vergleich zu einer Wartebedingung, emotionaler Akzeptanz und kognitiver Neubewertung effektiv zur Reduktion depressiver Stimmung eingesetzt werden (Studie 2). Der Befund, dass aktuell (und ehemals depressive) Personen mitfühlende Selbstunterstützung ohne vorheriges Training effektiv einsetzen können stimmt dabei mit der Hypothese überein, dass es sich bei mitfühlender Selbstunterstützung um eine Strategie handelt, die, da sie auf das eigene Leiden aufbaut, explizit auch von stärker belasteten Personen eingesetzt werden kann (Berking & Whitley, 2014; Diedrich, Grant, Hofmann, Hiller & Berking, 2014).

Unter der Prämisse von Defiziten in der adaptiven ER als vielversprechender Risikofaktoren für die Entstehung, Aufrechterhaltung und Wiederkehr von MDD (siehe 2.2 bzw. Teasdale, 1988; Teasdale & Barnard, 1993) könnten Interventionen zur Steigerung mitfühlender Selbstunterstützung und weiterer relevanter Komponenten der adaptiven ER (z.B. Verstehen, Modifikation, Akzeptanz, Toleranz und Konfrontationsbereitschaft) vor dem Hintergrund dieser Arbeit zu einer Verbesserung der Effektivität und Nachhaltigkeit der Depressionsbehandlung beitragen. Da Defizite in der adaptiven ER und damit assoziierte situationsunangemessene Affekte als Risikofaktoren für eine Vielzahl unterschiedlicher psychischer Störungen gelten (Berking & Wuppermann, 2012; Gross & Muñoz, 1995) könnten Interventionen zur Verbesserung der adaptiven ER über MDD hinaus auch in der Behandlung weiterer Störungen (z.B. substanzbezogener Störungen, Essstörungen, somatoformer Störungen; Berking & Wuppermann, 2012) wirksam sein. Im Umgang mit Komorbiditäten könnten diese Interventionen zu einer Verbesserung der Behandlungseffizienz führen. Vor dem Hintergrund hoher Rückfall- und Komorbiditätsraten als wesentlicher Herausforderungen in der Behandlung von MDD (siehe 2.1 bzw. z.B. Andreescu et al., 2007; Brown et al., 1996; Thase et al., 1992; Vittengl et al., 2007) stellen Interventionen zur Steigerung der adaptiven ER vielversprechende Ansätze zur Verbesserung der Depressionsbehandlung dar.

5.3 Perspektiven

Im Rahmen der geplanten randomisiert-kontrollierten Studie (siehe Studie 4) soll zunächst geklärt werden, inwieweit eine Verbesserung des Gesamtwerts sowie einzelner Komponenten des Modells adaptiver ER nach Berking (siehe Abbildung 1 bzw. Berking & Znoj, 2008) bei Personen mit MDD zu einer Verbesserung der psychischen Gesundheit (inklusive einer Abnahme der depressiven Symptombelastung; Stand-Alone Effekte) und einer Steigerung der Wirksamkeit nachfolgender kognitiv-verhaltenstherapeutischer Interventionen (Augmentation Effekte) beiträgt. Darüber hinaus könnten langfristig angelegte Katamnese-Studien zeigen, inwieweit eine Verbesserung mitfühlender Selbstunterstützung und weiterer relevanter Komponenten der adaptiven ER (z.B. durch das TEK oder die CFT) helfen kann, Rückfallraten nach abgeschlossener psychotherapeutischer Behandlung zu reduzieren (Berking, 2010). Vor dem Hintergrund einer möglichen Relevanz von Defiziten in der adaptiven ER für die Entstehung von MDD könnten weitere Studien zudem untersuchen, inwieweit Interventionen, die an einer Verbesserung der adaptiven ER ansetzen zur Prävention von MDD eingesetzt werden können.

Neben der Forschung zu konkreten Ansatzpunkten der adaptiven ER, deren Förderung durch gezielte Interventionen zu einer Aufrechterhaltung und Verbesserung der psychischen Gesundheit beitragen könnte, stellt die Identifikation von Faktoren, die Defiziten in der adaptiven ER zugrunde liegen eine wichtige Herausforderung dar. Erste Studien bringen Verzerrungen in kognitiven Prozessen wie Aufmerksamkeit (Joormann & Gotlib, 2007), Interpretation (Willoughby et al., 2002; Wisco & Nolen-Hoeksema, 2010), Erinnerung (Bower, 1981; Koster et al., 2010) und exekutiven Funktionen (Joormann, 2005; Joormann & Gotlib, 2010; Joormann et al., 2011) mit Emotionsregulationsdefiziten (z.B. häufiger Emotionsunterdrückung und seltener Neubewertung) in Zusammenhang. Weitere Studien könnten Zusammenhänge zwischen kognitiven Biases und Einschränkungen in mitfühlender Selbstunterstützung und weiteren Komponenten des Modells adaptiver ER nach Berking (d.h. Aufmerksamkeit, Klarheit, Körperwahrnehmung, Verstehen, Modifikation, Akzeptanz, Toleranz und Konfrontationsbereitschaft; siehe Abbildung 1 bzw. Berking & Znoj, 2008) untersuchen. Kognitive Trainings, die an entsprechenden Biases ansetzen könnten über Interventionen wie dem TEK oder der CFT hinaus zu einer Verbesserung der Effektivität und Effizienz der Depressionsbehandlung beitragen.

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7 APPENDIX

7.1. Studie I

Ehret, A. M., Joormann, J. & Berking, M. (submitted). Examining risk and resilience factors for depression: The role of self-criticism and self-compassion. Manuscript submitted for publication in *Cognition and Emotion*.

7.2. Studie II

Ehret, A. M., Joormann, J. & Berking, M. (submitted). Self-compassion decreases depressed mood in individuals vulnerable to depression. Manuscript submitted for publication in *Cognition and Emotion*.

7.3. Studie III

Ehret, A. M., Radkovsky, A., Joormann, J. & Berking, M. (submitted). Adaptive emotion regulation predicts decrease in negative affect over the course of depression treatment. Manuscript submitted for publication in *Depression and Anxiety*.

7.4. Studie IV

Ehret, A. M., Kowalsky, J., Rief, W., Hiller, W. & Berking, M. (2014). Reducing symptoms of major depressive disorder through a systematic training of general emotion regulation skills: protocol of a randomized controlled trial. *BMC Psychiatry*, 14: 20. doi: 10.1186/1471-244X-14-20

7.1 Studie I

Ehret, A. M., Joormann, J. & Berking, M. (submitted). Examining risk and resilience factors for depression: The role of self-criticism and self-compassion. Manuscript submitted for publication in *Cognition and Emotion*.

Running Head: RISK AND RESILIENCE FACTORS FOR MDD

Examining Risk and Resilience Factors for Depression: The Role of Self-Criticism and Self-Compassion

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Abstract

Self-criticism has been proposed as an important cognitive risk and maintenance factor for Major Depressive Disorder (MDD). In contrast, increased self-compassion and self-reassurance have been suggested as resilience factors that protect against the development and maintenance of depressive episodes. The present study aimed to directly test the hypothesis that concurrent depression and vulnerability to depression are related to frequent self-criticism and low habitual self-compassion and self-reassurance. For this purpose, we recruited groups of currently, formerly, and never depressed individuals. Participants completed self-report questionnaires on habitual self-criticism, self-compassion, self-reassurance, and potentially related, more established correlates of MDD (i.e., perfectionistic beliefs and cognitions, rumination, and overall adaptive emotion regulation). As expected, both currently and formerly depressed individuals reported higher levels of self-criticism and lower levels of self-compassion and self-reassurance than never depressed controls. Individual differences in self-criticism, self-compassion, and self-reassurance were related to depression status above and beyond the more established correlates of MDD. The findings provide preliminary support for the idea that increased self-criticism and decreased self-compassion and self-reassurance place certain individuals at increased risk for experiencing depression repeatedly or chronically over the course of their lives.

Keywords: depression, vulnerability, self-criticism, self-compassion, self-reassurance

Examining Risk and Resilience Factors for MDD: The role of Self-criticism and Self-Compassion

Major depressive disorder (MDD) is one of the most common mental disorders (Kessler & Bromet, 2013; Kessler et al., 2003) and is considered a leading cause of disease burden worldwide (Kessler, 2012; Mathers, Fat, & Boerma, 2008). The immense contribution of MDD to the total burden of disease is largely due to its highly chronic and recurrent nature (Arnow & Constantino, 2003; Bockting et al., 2005). Approximately 20% of individuals with depression experience episodes that last for two years or longer (Arnow & Constantino, 2003). The risk for repeated episodes in individuals who have recovered from a depressive episode exceeds 80% (Boland & Keller, 2002) and patients experience an average of four major depressive episodes, each lasting an average of 20 weeks (Judd, 1997). High rates of chronicity and recurrence of depression almost certainly reflect the presence of enduring vulnerability factors, which place certain individuals at increased risk for experiencing depression chronically or repeatedly over the course of their lives.

A number of authors have emphasized the importance of maladaptive responses to negative emotions for the development and maintenance of depressive episodes. Teasdale (1988), for example, postulated that depression vulnerable and non-vulnerable individuals do not differ primarily in their initial response to a negative event, but in their responses to the elicited negative emotions and their ability to recover from negative affective states. The current study will focus on the role of self-criticism versus self-compassion and self-reassurance as alternative responses to perceived failure and associated negative emotions for vulnerability to depression. Associations among self-criticism, self-compassion, self-reassurance and potentially related, more established correlates of MDD (i.e., perfectionistic beliefs and cognitions, rumination, and overall adaptive ER; Berking & Schwarz, 2014; Nolen-Hoeksema, 2000; Radkovsky, McArdle, Bockting, & Berking, 2014; Shafran & Mansell, 2001) will be discussed.

Self-criticism can be defined as a response style to perceived failure that is characterized by negative self-judgment and self-evaluation (e.g., Cox, Clara, & Enns, 2009; Dunkley, Zuroff, & Blankstein, 2006). Self-criticism is associated with negative emotions, especially contempt and disgust for the self (Whelton & Greenberg, 2005). Research suggests that it is the strength of negative emotions towards oneself and an inability to adequately cope with these emotions that put highly self-critical individuals at risk for the development and maintenance of depressive episodes (Gilbert, Clarke, Hempel, Miles, & Irons, 2004; Whelton & Greenberg, 2005). Individual differences in habitual self-criticism are linked to the trait of maladaptive perfectionism, i.e., the setting of exceedingly high standards for performance and high evaluative concerns (Gilbert, Durrant, & McEwan, 2006; Shafran, Cooper, & Fairburn, 2002).

As opposed to self-criticism, self-compassion and self-reassurance are thought to be more adaptive, alternative responses to perceived failure (Gilbert, 2000). Self-compassion is a strategy that has a long tradition in Buddhist approaches to enhance well-being (Gilbert & Irons, 2004) and has recently gained increased attention of mental health and well-being researchers (e.g., Neff, 2003). Self-compassion entails being kind and understanding toward oneself in instances of pain or failure rather than being harshly self-critical; perceiving one's experiences as part of the larger human experience rather than seeing them as isolating; and holding painful thoughts and feelings in mindful awareness rather than over-identifying with them (Neff, 2003). Self-compassion is thought to facilitate self-reassurance (Berking & Whitley, 2014), including components such as the ability to remind oneself of one's positive traits, past successes, and capabilities enacted in stressful situations (Gilbert et al., 2004). Self-compassion and self-reassurance are regarded as effective emotion regulation (ER) strategies that help transform negative affects towards oneself into more positive self-referential affects (Neff, 2003). Considering the importance of adaptive ER for mental health (e.g., Berking & Wupperman, 2012; Joormann & Siemer, 2014; Teasdale, 1988), self-compassion and self-reassurance should serve as resilience factors that protect against the development and maintenance of depressive episodes.

In healthy, often student, samples, previous cross-sectional and longitudinal studies have preliminarily supported positive associations between self-criticism and higher depressive symptoms (Gilbert, Baldwin, Irons, Baccus, & Clark, 2006; Gilbert et al., 2004; Powers, Zuroff, & Topciu, 2004; Zuroff, Igreja, & Mongrain, 1990); negative concurrent and prospective associations were reported between more frequent use of self-compassion (MacBeth & Gumley, 2012; Neff & McGehee, 2010; Neff, 2003) and self-reassurance (Gilbert et al., 2004; Gilbert, Baldwin, et al., 2006) and depressive symptom severity. Research on associations between self-criticism (e.g., Enns & Cox, 1999; Enns, Cox, & Borger, 2001), self-compassion (Krieger, Altenstein, Baettig, Doerig, & Holtforth, 2013), and self-reassurance and depression in clinically diagnosed MDD samples is sparse. Moreover, few studies have investigated self-criticism, self-compassion, and self-reassurance in formerly depressed individuals. Thus, little is known about the importance of these factors for vulnerability to depression. One previous study (Mongrain & Leather, 2006) linked a past history of depression to higher habitual self-criticism. In another study (Ehring, Fischer, Schnülle, Bösterling, & Tuschen-Caffier, 2008), a recovered depressed student sample compared to a never-depressed control group did not show significantly higher ratings for self-blame. These findings indicate that more research is needed to clarify the importance of self-criticism, self-compassion, and self-reassurance for concurrent, clinically diagnosed depression as well as for vulnerability to depression.

In addition, it seems important to examine the relation among self-criticism, self-compassion, self-reassurance, and more established correlates of MDD (i.e., perfectionistic beliefs and cognitions, rumination, and overall adaptive ER). Perfectionism, including perfectionistic beliefs and frequent perfectionistic cognitions about standards and failures to meet these standards, has been discussed as a trait marker for various forms of psychopathology, including MDD (e.g., Flett, Madorsky, Hewitt, & Heisel, 2002; Jacobs et al., 2009; Shafran & Mansell, 2001). Perfectionism has been linked closely to increased habitual self-criticism (e.g., Gilbert, Durrant, et al., 2006; Shafran et al., 2002). Rumination is the most frequently studied, maladaptive response to negative emotions. In an extensive program of experimental and correlational studies, Nolen-Hoeksema and colleagues investigated rumination in depression and dysphoria and analyzed how this response style exacerbates sad mood and contributes to the onset, recurrence, and maintenance of depressive episodes (Nolen-Hoeksema, 2000; Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). Positive associations have been reported among ruminative responses to distress, frequent perfectionistic thoughts, and increased habitual self-criticism (e.g., Flett, Hewitt, Blankstein, & Gray, 1998; Nolen-Hoeksema et al., 2008; Shafran et al., 2002).

Overall adaptive ER is defined as the situation-dependent interplay among the following components: emotional awareness, clarity, understanding, modification, acceptance, and tolerance as well as the abilities to identify emotions, to confront distressing situations, and to support oneself in distressing situations (Berking, 2008; Berking & Schwarz, 2014, Berking & Whitley, 2014). As adaptive responses to negative emotions, the single components as well as an overall score of adaptive ER have concurrently and prospectively been linked to lower depressive symptom severity in numerous studies (e.g., Berking, Ebert, Cuijpers & Hoffmann, 2013; Berking, Orth, Wuppermann, Meier, & Caspar, 2008; Berking, Wupperman, Reichardt, Pejic, Dippel, & Znoj, 2008; Berking & Znoj, 2008; Radkovsky, McArdle, Bockting & Berking, 2014). Little is known about the role of increased perfectionism and deficits in adaptive ER for vulnerability to depression in recovered depressed individuals.

The present study was designed to compare levels of self-reported, habitual self-criticism, self-compassion, self-reassurance, and potentially related, more established correlates of MDD (i.e., perfectionistic beliefs and cognitions, rumination, and overall adaptive ER) among groups of currently, formerly, and never depressed individuals. We aimed to directly test the hypothesis that concurrent depression and vulnerability to depression are related to increased self-criticism and decreased self-compassion and self-reassurance. Specifically, it was expected that both currently and formerly depressed compared to never depressed individuals report higher self-criticism and lower self-compassion and self-reassurance. Self-criticism, self-compassion, and self-reassurance

should be related to concurrent depression or depression vulnerability status above and beyond individual differences in the potentially related, more established correlates of MDD. Exploratory analyses served to examine group differences in perfectionistic beliefs and cognitions, rumination, and overall adaptive ER.

Method

Participants and Procedures

A sample of 101 MDD patients completed self-reports on self-criticism, self-compassion, self-reassurance, and the more established correlates of MDD (i.e., perfectionistic beliefs and cognitions, rumination, and overall adaptive ER) after enrollment in a treatment outcome study for depression in two outpatient treatment centers in Germany. For our main analyses, we randomly selected 30 individuals of the total MDD sample and recruited groups of remitted depressed (RMD) and never depressed control (NC) participants ($n = 30$ each). RMD and NC participants were matched to the selected MDD participants with regard to age, sex, and level of education. RMD and NC participants were solicited in one of the two outpatient treatment centers in Germany as well as through advertisements posted in numerous locations within the local communities and in local newspapers. Participants were assigned to the groups on the basis of a Structured Clinical Interview for DSM-IV (SCID; German version: Wittchen, Zaudig, & Fydrich, 1997). The diagnostic interviews were administered by raters with Bachelor's degrees or above in clinical psychology. All raters received extensive training in using the SCID interview and were supervised by experienced psychotherapists (i.e., psychologists with Master's degrees or above in psychology).

Individuals in the MDD group were diagnosed with MDD as the primary diagnosis. Participants in the RMD group had experienced at least one major depressive episode in the past and had been remitted for at least two months prior to inclusion in this study. NC participants did not meet criteria for any mental disorder and had no history of MDD at the time of the study. Further inclusion criteria for all groups included age 18 or above and sufficient German language skills. Exclusion criteria included acute risk for suicide or comorbid psychotic, substance-related, bipolar disorders, organic brain or other severe medical disorders, and severe cognitive impairments.

Individuals who were interested and eligible for participation in the study received further information on the study and a battery of self-report questionnaires by mail. They returned the questionnaires to the investigators of the study at a follow-up appointment for an experimental investigation of ER skills in one of the two outpatient treatment centers. All participants received € 20 in return for their participation in this study and the experimental investigation. Written informed

consent was obtained from all participants and all procedures were approved by the ethics committees of the Universities of Mainz and Marburg.

Measures

Several measures were chosen to measure depressive symptom severity and levels of self-criticism, self-compassion, self-reassurance, and the more established correlates of MDD (i.e., perfectionistic beliefs and cognitions, rumination, and overall adaptive ER).

Patient Health Questionnaire. The brief Patient Health Questionnaire (PHQ; Löwe et al., 2002) was used to assess participants' current symptom levels of depression. Participants indicate on a 4-point Likert scale (*0 = not at all* to *3 = nearly every day*) how frequently they have experienced each of the nine DSM-IV symptoms for MDD (e.g., "little pleasure or interest in doing things", "feeling down, depressed, or hopeless") during the past two weeks. The PHQ has been found to have good convergent and discriminant validity and excellent internal consistency across clinical samples (Henkel, Mergl, Kohnen, Maier, Moeller, & Hegerl, 2003; Löwe et al., 2004) and in the general population (Rief, Nanke, Klaiberg, & Braehler, 2004; Martin, Rief, Klaiberg, & Braehler, 2006).

Forms of Self-Criticizing/Attacking and Self-Reassuring Scale. The Forms of Self-Criticizing/ Attacking and Self-Reassuring Scale (FSCRS; Gilbert et al., 2004) is a measure of people's responses to setbacks or disappointments. Participants respond on a 5-point Likert scale (*0 = not at all like me* to *4 = extremely like me*) on a series of questions on self-criticism (e.g., "when things go wrong for me, there is a part of me that puts me down") and self-reassurance (e.g., "when things go wrong for me, I find it easy to forgive myself"). Sound psychometric properties have previously been reported for the FSCRS (Gilbert et al., 2004).

Self-Compassion Scale. The Self-Compassion Scale (SCS; Neff, 2003) was administered to assess the degree to which individuals display self-kindness (versus self-judgment), common humanity (versus isolation), and mindfulness (versus over-identification). Participants indicate the extent to which they behave consistently with each of the 26 descriptive statement (e.g., "I try to be understanding and patient toward those aspects of my personality I don't like") using a 5-point scale (*1 = almost never* to *5 = almost always*). The SCS has been supported as an economic, reliable, and valid questionnaire for assessing self-compassion (Hupfeld & Ruffieux, 2011).

Dysfunctional Attitude Scale-Perfectionism. The Dysfunctional Attitude Scale-Perfectionism (DAS- Perfectionism; Hautzinger, Luka, & Trautmann, 1985; Imber et al., 1990) was used to assess participants' levels of maladaptive perfectionistic beliefs. On a 7-point Likert scale (*0 = totally disagree* to *7 = totally agree*), respondents indicate their agreement with 15 statements such as,

“if I fail at my work, then I am a failure as a person”. Several factor analytic studies have supported the DAS as a measure of perfectionism (e.g., Cane, Olinger, Gotlib, & Kuiper, 1986; Oliver & Baumgart, 1985; De Graaf et al., 2009). The scale has been found to demonstrate excellent internal consistency (Jacobs et al., 2009).

Perfectionism Cognitions Inventory. The Perfectionism Cognitions Inventory (PCI; Flett et al., 1998) was used as measure of perfectionistic thoughts. On a 5-point Likert scale (0 = *not at all* to 4 = *almost always*) participants rate how frequently 25 thoughts, such as “things are seldom ideal”, have occurred to them over the last week. Validation analyses have indicated adequate internal consistency and concurrent validity for the PCI (Flett et al., 1998).

Rumination on Sadness Scale. The Rumination on Sadness Scale (RSS; Conway, Csank, Holm, & Blake, 2000) is a self-report measure of ruminative responses to the experience of sadness. The measure is composed of 13 items (e.g., “I repeatedly analyze and keep thinking about the reasons for my sadness”). The items are answered on a 5-point scale (1 = *not at all* to 5 = *very much*). Good psychometric qualities have previously been reported for the RSS (Conway et al., 2000).

Emotion Regulation Skills Questionnaire. The Emotion Regulation Skills Questionnaire (ERSQ; Berking & Znoj, 2008) was used as a measure of overall adaptive ER, including emotional awareness, clarity, understanding, modification, acceptance, and tolerance as well as the abilities to identify emotions, to confront distressing situations, and to support oneself in distressing situations. On a 5-point scale (0 = *not at all* to 4 = *almost always*), participants indicate the extent to which items referring to these nine components of adaptive ER have applied to them within the past week. Results from validation studies support the scale’s convergent and discriminant validity and indicate that both the total score and the nine subscales of the ERSQ have good internal consistencies and adequate retest-reliability (Berking & Znoj, 2008).

Results

Participant Characteristics

Demographic characteristics of the MDD, RMD, and NC groups of participants are presented in Table 1. As expected, the matched groups of MDD, RMD, and NC participants did not differ significantly in age ($F(2, 87) = .20, p = .82$). RMD and MDD participants did significantly differ in the mean number of previous episodes reported ($t(54) = 2.47, p = .02$). The last depressive episode in RMD participants had occurred on average 32.87 months before the assessment ($SD = 37.10$ months; *range*: 2-132 months). In line with our group selection criteria, the MDD group had significantly higher PHQ- depression scores than did both the RMD ($d = 1.72$) and NC ($d = 2.68$) participants (both $ps < .01$) who did not significantly differ from each other, $t(58) = .23, p = .06$.) (see

Table 1). All participants were Caucasian (which is quite representative of the German population).

(Table 1 about here)

Preliminary Analyses

Preliminary analyses on the total MDD sample ($N = 101$) supported significant associations between self-criticism, self-compassion, self-reassurance as well as each of the more established correlates of MDD (i.e., perfectionistic beliefs and cognitions, rumination, and overall adaptive ER) and levels of depression (see Table 2). An exploratory principal axis factor analysis confirmed the presence of a relationship between our study constructs (Kaiser's Meyer Olkin measure of sampling adequacy = .76; Bartlett's test of sphericity: $\chi^2(28) = 233.10$, $p < .01$; Field, 2000). The analysis yielded a single factor solution with the hypothesized risk (i.e., self-criticism, perfectionistic beliefs and cognitions, and rumination) and resilience (i.e., self-compassion, self-reassurance, and overall adaptive ER) factors as opposites. The PHQ loaded on this factor at .63 (see Table 2).

(Table 2 about here)

Test for Group Differences

It was expected that both MDD and RMD participants would report significantly higher levels of self-criticism and lower self-compassion and self-reassurance than NC participants. Descriptive characteristics (i.e., means, standard deviations, and internal consistency scores) and results of group comparisons are given in Table 3. The structure of mean scores indicates a decrease in self-reported habitual self-criticism and an increase in self-compassion and self-reassurance from MDD to RMD and NC individuals. A similar pattern also emerged for indicators of perfectionism, rumination, and overall adaptive ER (see Table 3).

In order to explore differences in the considered constructs among MDD, RMD, and NC participants, we conducted a multivariate analysis of variance (MANOVA) with group (MDD, RMD, NC) as the independent and levels of self-criticism, self-compassion, self-reassurance, and the more established correlates of MDD (i.e., perfectionistic beliefs and cognitions, rumination, and overall adaptive ER) as the dependent variables. Main effects for group in the MANOVA that remained significant after Bonferroni corrections were performed to reduce the probability of a Type I error were followed up by separate t-tests, adjusted for α inflation following the least significant difference (LSD) procedure. Effect sizes of the overall group differences are reported by partial eta squared (η_p^2), whereby values up to 0.01 refer to small, 0.06 to moderate, and 0.14 to large effect sizes (Cohen, 1988). Between group differences are reported with Cohen's d , whereby values up to 0.2 refer to small, 0.5 to moderate, and 0.8 to large effect sizes (Cohen, 1988).

The MANOVA supported significant group differences in levels of habitual self-criticism, self-compassion, and self-reassurance. MDD participants reported higher self-criticism and lower self-compassion and self-reassurance than did both RMD (self-criticism: $d = 1.25$; self-compassion: $d = -1.65$; self-reassurance: $d = -1.75$) and NC (self-criticism: $d = 2.40$; self-compassion: $d = -2.20$; self-reassurance: $d = -2.33$) participants. RMD participants reported higher self-criticism ($d = 1.05$) and lower self-compassion ($d = -0.42$) and self-reassurance ($d = -0.89$) than NC participants.

Significant group differences were also found on all of the more established correlates of MDD. MDD participants reported higher perfectionistic beliefs and cognitions and rumination as well as lower overall adaptive ER than did both RMD (perfectionistic beliefs: $d = 1.00$; perfectionistic cognitions: $d = 0.71$; rumination: $d = 0.79$; overall adaptive ER: $d = -1.59$) and NC (perfectionistic beliefs: $d = 1.42$; perfectionistic cognitions: $d = 1.04$; rumination: $d = 1.62$; overall adaptive ER: $d = -2.03$) participants. RMD participants reported being more prone to ruminate than did NC participants ($d = 0.72$). RMD and NC individuals did not differ, however, in their reported perfectionistic beliefs and cognitions and in their levels of overall adaptive ER.

(Table 3 about here)

Prediction of Depression Status

In order to test how well concurrent and past depression status can be predicted by individual differences in self-criticism, self-compassion, and self-reassurance, we conducted two hierarchical multiple logistic regression analyses. Group status (i.e., MDD; NC in model 1 and RMD; NC in model 2) served as the dependent variable. Perfectionistic beliefs and cognitions, rumination, and overall adaptive ER were entered as predictors in Step 1. In Step 2, we entered self-criticism, self-compassion, and self-reassurance to test whether these variables added significantly to the prediction of concurrent or past depression above and beyond the more established correlates of MDD.

The model for MDD and NC participants was significant. The variables entered in Step 2 did add significantly to the prediction of concurrent depression status (R^2 Change = .07, $p = .01$). The total model correctly classified 68.5% of the participants as currently or never depressed. FSCRS- self-criticism ($b = .19$, $SE = .09$, $\beta = .35$, $p = .04$) and ERSQ- adaptive ER ($b = -.16$, $SE = .07$, $\beta = -.25$, $p = .04$) scores contributed significantly to the model. The model for RMD and NC participants was not significant after Step 1. The inclusion of self-criticism, self-compassion, and self-reassurance in Step 2 did significantly improve the prediction of depression vulnerability status (R^2 Change = .15, $p = .02$). The total model correctly classified 28.1 % of the participants as individuals with vs.

without a past history of depression. FSCRS- self-criticism was found to be a significant and unique predictor of past depression status ($b = .69$, $SE = .34$, $\beta = .02$, $p = .05$).

Discussion

In the present study, we aimed to directly test the hypothesis that concurrent clinical depression and vulnerability to depression, operationalized by the presence of at least one past depressive episode, are related to higher self-criticism and lower self-compassion and self-reassurance. As expected, MDD participants reported higher habitual self-criticism and lower self-compassion and self-reassurance than NC controls. This finding is consistent with previous reports on associations between increased self-criticism and decreased self-compassion and self-reassurance and levels of depressive symptoms (e.g., Enns & Cox, 1999; Enns, et al., 2001; Gilbert et al., 2004; Gilbert, Baldwin, et al., 2006; Krieger et al., 2013). Significant differences between RMD and NC participants provide preliminary support for the hypothesis that increased self-criticism and decreased self-compassion and self-reassurance are not only concomitants of acute, clinically diagnosed depression but also more enduring risk factors for the development of recurrent depressive episodes. In addition to testing the hypothesis, exploratory analyses were conducted on the potentially related, more established correlates of MDD (i.e., perfectionistic beliefs and cognitions, rumination, and overall adaptive ER). In line with previous research, MDD participants reported significantly higher perfectionistic beliefs and cognitions and rumination as well as lower overall adaptive ER than NC participants (e.g., Berking & Schwarz, 2014; Flett et al., 1998; Hewitt, Flett, & Ediger, 1996; Nolen-Hoeksema, 2000; Radkovsky et al., 2014). Significantly greater rumination in RMD than NC participants fits with previous reports on ruminative response tendencies to negative emotions as a risk factor for depression recurrence (e.g., Nolen-Hoeksema, 2000). In logistic regression analyses, increased self-criticism and decreased self-compassion and self-reassurance significantly added to the prediction of concurrent or past depression status above and beyond the more established correlates of MDD (i.e., perfectionistic beliefs and cognitions, rumination, and overall adaptive ER). The more established correlates of MDD were not supported as significant predictors of depression vulnerability status.

Another interesting finding of the present study is that self-criticism, self-compassion, self-reassurance, and the more established correlates of MDD (i.e., perfectionistic beliefs and cognitions, rumination and overall adaptive ER) constitute opposite ends of the same dimension. This finding contradicts previous factor analytic results indicating that items of self-criticism and self-compassion and self-reassurance load on highly correlated but distinct factors (Hupfeld & Ruffieux, 2011; Neff, 2003; Gilbert et al., 2004; Raes, Pommier, Neff, & Van Gucht, 2010). The one-factor solution suggests that scoring high on self-compassion and self-reassurance necessarily

implies with having low levels of self-criticism. Thus, the result of a single factor is consistent with previously reported effects of self-compassion interventions on decreases in self-criticism (e.g., Gilbert & Procter, 2006; Lucre & Corten, 2012; Mayhew & Gilbert, 2008). Future studies on MDD samples will have to replicate the one-factor structure of self-criticism, self-compassion, and self-reassurance. These studies should include exploratory and confirmatory factor analyses and compare model fit among one-factor, two-factor, and bi-factor models consisting of both an overall factor and separate risk and resilience factors.

If replicated in future research, the findings from the present study have important clinical implications. In previous research, highly self-critical patients exhibited a poorer response to cognitive therapy (Rector, Bagby, Segal, Joffe, & Levitt, 2000) and were more likely to relapse than those with lower levels of self-criticism (Teasdale & Cox, 2001). The degree to which self-criticism was successfully reduced in treatment was supported as a good predictor of treatment response to cognitive therapy (Rector, 2000). Findings of the current study suggest that systematically enhancing self-compassion and self-reassurance with specific interventions may help reduce levels of self-criticism and may thus help restore and maintain mental health. Recently, some psychotherapy treatments for mental disorders have begun to systematically use self-compassion to help patients overcome mental health problems. Feasibility and pilot trials (Gilbert & Procter, 2006; Laithwaite, O'Hanlon, Collins, Doyle, Abraham, & Porter, 2009; Lucre & Corten, 2012; Mayhew & Gilbert, 2008) provide preliminary support for the effectiveness of compassion-focused therapy (Gilbert, 2010) to decrease depressive symptoms in clinical populations. Results from our study encourage further research on how CFT and other treatments including self-compassion components (e.g., Teasdale, Segal, Williams, Ridgeway, Soulsby, & Lau, 2000; Berking, 2008; Berking & Whitley, 2014) can be used to reduce concurrent depressive symptom severity and to prevent the recurrence of depressive episodes. These studies should also explore the extent to which decreases in self-criticism mediate subsequent treatment effects on decreases in depression symptom.

In closing, we should note several limitations of the current study. First, because of the cross-sectional design, we cannot rule out alternative explanations for the findings, e.g., that elevated self-criticism and decreased self-compassion and self-reassurance in RMD participants may be the consequence of past depression in the sense of a scar effect (e.g., Ehring et al., 2008). Longitudinal and experimental studies are needed to replicate our findings and to better understand causal relationships between self-criticism, self-compassion, and self-reassurance and depressive symptoms. Research on depression vulnerability should be extended by studies on individuals at risk for depression who have no current or past diagnosis of psychopathology (e.g., never-disordered

daughters whose mothers have experienced recurrent episodes of depression during their daughters' lifetime; Joormann, Cooney, Henry, & Gotlib, 2012; Joormann, Gilbert, & Gotlib, 2010). A second limitation of the study is the exclusive reliance on self-report data. To gain a more comprehensive picture of depression and depression vulnerability, future studies should include multiple methods (e.g., self-report based, observer based, experimental, and biological) of assessing depression and potential risk and resilience factors (Geiser, Eid, Nussbeck, Courvoisier, & Cole, 2010). Third, despite careful selection of participants (i.e., use of a diagnosed clinical sample, recruiting of participants from the general population, matching of MDD, RMD, and NC participants with regard to relevant characteristics), the modest sample sizes should be noted. Future studies using larger samples are needed to replicate the one-factor structure of self-criticism, self-compassion, and self-reassurance in further exploratory as well as in confirmatory factor analyses. Larger samples are also needed to more reliably investigate the relative importance of specific constructs in the prediction of concurrent or past depression status in regression analyses. Finally, these studies should also extend our work by including further potentially relevant risk and resilience factors as neuroticism (Yoon, Maltby, & Joormann, 2013) or specific components of adaptive ER that have been shown to be most relevant for mental health (i.e., emotional acceptance and modification; Berking, Poppe, Luhmann, Wupperman, Jaggi, & Seifritz, 2012).

If replicated in future studies, our findings on self-criticism, self-compassion, and self-reassurance as opposite risk and resilience factors for depression have important implications for theoretical models on the maintenance and recurrence of MDD and may help improve the efficacy and stability of treatment for depression.

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Table 1
Sample Characteristics

	Total MDD (<i>N</i> = 101)	Group		
		MDD (<i>n</i> = 30)	RMD (<i>n</i> = 30)	NC (<i>n</i> = 30)
% Female	67.3	66.7	66.7	66.7
Age (<i>SD</i>)	36.11 (11.91)	41.03 (12.45)	39.50 (12.13)	39.17 (12.42)
% Abitur	61.0	60.0	60.0	60.0
Number of episodes (<i>SD</i> , <i>range</i>)	1.98 (1.67, 0- 9)	2.38 (1.92, 0-9)	1.47 (1.63, 1-3)	0
PHQ- depression (<i>SD</i>)	13.95 (5.09)	13.59 (5.00)	5.38 (4.57)	3.17 (3.24)

Note. MDD = currently depressed participants. RMD = remitted depressed participants. NC = never depressed controls.

Table 2

Results of Correlational and Exploratory Factor Analyses in the Total MDD Sample

	2.	3.	4.	5.	6.	7.	8.	Factor Loadings
1. PHQ-Depression	.44**	-.41**	-.36**	.34**	.23*	.44**	-.40**	.63
2. FSCRS-Criticism		-.56**	-.48**	.49**	.33**	.42**	-.35**	.72
3. FSCRS-Reassurance			.59**	-.32**	-.22*	-.30**	.53**	-.80
4. SCS-Compassion				-.38**	-.19	-.26*	.29**	-.62
5. DAS-Perfectionism					.69**	.37**	-.24*	.54
6. PCI-Perfectionism.						.20*	-.12	.36
7. RSS-Rumination							-.09	.46
8. ERSQ-Adaptive ER								-.57

Note. PHQ = Patient Health Questionnaire. FSCRS = The Functions of Self-Criticism/ Attacking Scale. SCS = Self-Compassion Scale. DAS = Dysfunctional Attitude Scale. PCI = Perfectionism Cognitions Inventory. RSS = Rumination on Sadness Scale. ERSQ = Emotion Regulation Skills Questionnaire. * $p < .05$, ** $p < .01$.

Table 3

Descriptives (Means, Standard Deviations, Reliabilities) and Results of Group Comparisons

Scale	MDD ^a		RMD ^b		NC ^c		MANOVA	
	<i>M (SD)</i>	α	<i>M (SD)</i>	α	<i>M (SD)</i>	α	F (2, 87)	η_p^2
FSCRS-Criticism	2.40 (0.65) ^{cb}	.86	1.60 (0.63) ^{ac}	.80	1.00 (0.51) ^{ab}	.80	41.05**	.49
FSCRS-Reassurance	1.21 (0.61) ^{cb}	.83	2.15 (0.54) ^{ac}	.77	2.68 (0.65) ^{ab}	.85	45.57**	.51
SCS-Compassion	2.37 (0.37) ^{cb}	.75	3.05 (0.45) ^{ac}	.86	3.23 (0.41) ^{ab}	.84	42.05**	.49
More Established Correlates of MDD								
DAS-Perfectionism	3.96 (1.56) ^{cb}	.96	2.54 (1.28) ^a	.95	2.14 (0.92) ^a	.92	16.66**	.28
PCI-Perfectionism	2.36 (1.07) ^{cb}	.96	1.68 (0.83) ^a	.94	1.38 (0.79) ^a	.95	9.32**	.18
RSS-Rumination	3.15 (0.66) ^{cb}	.86	2.58 (0.78) ^{ac}	.82	2.04 (0.71) ^{ab}	.90	17.96**	.29
ERSQ-Adaptive ER	1.74 (0.62) ^{cb}	.94	2.68 (0.56) ^a	.95	2.90 (0.52) ^a	.95	34.90**	.45

^{abc} Different superscripts denote significant differences between groups as derived from post-hoc tests with LDS correction.

Note. MDD = currently depressed participants. RMD = remitted depressed participants. NC = never depressed controls. FSCRS = The Functions of Self-Criticism/ Attacking Scale. SCS = Self-Compassion Scale. DAS = Dysfunctional Attitude Scale. PCI = Perfectionism Cognitions Inventory. RSS = Rumination on Sadness Scale. ERSQ = Emotion Regulation Skills Questionnaire. * $p < .05$, ** $p < .01$.

7.2 Studie II

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Running Head: SELF-COMPASSION AND VULNERABILITY TO MDD

Self-Compassion Decreases Depressed Mood in Individuals Vulnerable to Depression

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Abstract

Self-compassion has recently been discussed as an effective emotion regulation strategy for reducing negative affective states. The primary aim of the current study was to compare the efficacy of self-compassion to the more established strategies of acceptance and reappraisal. For this purpose, we induced depressed mood in formerly, currently and never depressed individuals ($n=30$ each) at four different time-points. Participants were instructed to regulate their emotions after each mood induction by either waiting, employing self-compassion, reappraising the situation, or accepting their emotions. Level of depressed mood was assessed before and after each mood induction and regulation phase. Across groups, decreases in depressed mood were greater in the self-compassion compared to the waiting and acceptance conditions. In recovered and never depressed participants, self-compassion was also more effective than reappraisal; in currently depressed individuals, however, the analyses yielded no significant differences between self-compassion and reappraisal. Our findings support self-compassion as an adaptive strategy to down-regulate depressed mood. Systematically enhancing self-compassion with specific interventions may help reduce depressive symptom severity and prevent the onset and recurrence of depressive episodes.

Keywords: depression, vulnerability, emotion regulation, self-compassion

Self-Compassion Decreases Depressed Mood in Individuals Vulnerable to Depression

Major Depressive Disorder (MDD) is one of the most significant mental health problems for individuals and societies. With lifetime prevalence rates of over 15% (Kessler, Berglund, Demler, Jin, Merikangas, & Walters, 2005) and rates of chronicity around 20% (Arnow & Constantino, 2003), MDD ranks fourth among all medical and psychiatric disorders when considering disease burden, and is the number one cause of disability worldwide (Üstün, Ayuso-Mateos, & Chatterji, 2004). The immense contribution of MDD to the total burden of disease is largely due to its highly recurrent nature (Bockting et al., 2005). The risk for repeated episodes in individuals who have recovered from a depressive episode exceeds 80% (Boland & Keller, 2002) with patients experiencing an average of four major depressive episodes of 20 weeks duration each (Judd, 1997). The mechanisms of depression relapse and recurrence, however, have remained largely elusive (Beshai, Dobson, Bockting, & Quigley, 2011).

Throughout the past 20 years, deficits in emotion regulation (ER) have gained increased attention as risk and maintenance factors for MDD (Berking & Wupperman, 2012; Ehring, Tuschen-Caffier, Schnülle, Fischer, & Gross, 2010; Joormann & Siemer, 2014; Mennin & Fresco, 2009). Teasdale (1988), for example, postulated that individuals who experience episodes of depression do not differ from their non-depressed counterparts in the degree to which they become sad but, rather, are characterized by an inability to repair or regulate their negative moods. Cognitive theories of depression have suggested that negative affective states cue cognitive processes that foster an escalation of negative mood which over time can culminate in a depressive episode (e.g., Beck, 2011; Lewinsohn, Steinmetz, Larson, & Franklin, 1981; Segal et al., 2006; Siemer, 2005; Teasdale & Barnard, 1993). Many authors have argued that deficits in ER are not confined to acute episodes of depression but may be a more stable characteristic of depression vulnerability (Ehring et al., 2008; Gross & Muñoz, 1995). For example, mild negative affective states were more likely to activate depressogenic thinking patterns and evolve into depressive episodes in individuals with a history of MDD compared to never depressed controls (Teasdale & Cox, 2001). From this perspective, strategies that down-regulate negative affective states could potentially be used to prevent the onset, maintenance, or recurrence of depressive episodes.

Strategies that have been discussed as effective in down-regulating undesired affective states include reappraisal and acceptance. Some previous cross-sectional and longitudinal studies on healthy and clinical, including MDD, samples have found negative associations between depressive symptoms and the use of reappraisal (Arditte & Joormann, 2011; D'Avanzato, Joormann, & Siemer, 2014; Garnefski & Kraaij, 2006; Garnefski, Teerds, & Kraaij, 2004; Martin & Dahlen, 2005) and acceptance (Berking, Orth, Wupperman, Meier, & Caspar, 2008; Radkovsky, McArdle, Bock-

ting, & Berking, 2014; Shallcross et al., 2004). Other studies failed to replicate significantly negative associations between reappraisal (Garnefski & Kraaij, 2006), acceptance (Garnefski & Kraaij, 2006; Garnefski, Kraaij, & Spinhoven, 2001; Martin & Dahlen, 2005) and depressive symptom severity. In the treatment of MDD, reappraisal and acceptance are crucial components of several therapeutic approaches, including cognitive behavioral therapy (e.g., Beck, 2011) and mindfulness-based therapies (e.g., Teasdale, Segal, Williams, Ridgeway, Soulsby, & Lau, 2000). Cognitive behavioral and mindfulness-based interventions have been shown to reduce depressive symptom severity (e.g., Arnow & Constantino, 2003; Cuijpers Berking, Andersson, Quigley, & Kleiboer, 2013; Hollon & Ponniah, 2010) and the risk for relapse (e.g., Beshai, et al., 2011; Shea et al., 1992; Vittengl, Clark, Dunn, & Jarrett, 2007).

Experimental studies on the effectiveness of ER strategies to decrease depressive symptoms are limited in number. Existing studies have often compared acceptance and reappraisal to suppression and other strategies that have been discussed as maladaptive and have been linked to various mental disorders (e.g., Aldao, Nolen-Hoeksema, & Schweizer, 2010). In healthy individuals, reappraisal was more effective than rumination, distancing, and accepting in increasing positive and decreasing negative affective states (Rood, Roelofs, Bögels, & Arntz, 2012); non-significant differences between reappraisal and suppression were reported for decreasing disgust (Gross, 1998). Experimental studies on individuals with current or previous depression or mixed depression and anxiety symptoms supported the effectiveness of acceptance (Campbell-Sills, Barlow, Brown, & Hofmann, 2006) and reappraisal (Ehring et al., 2010) over suppression. In another study, however, levels of negative affect during a sadness-inducing film were lower in the suppression than in the acceptance condition and participants of the two experimental groups showed comparable levels of negative affect at recovery (Liverant, Brown, Barlow, & Roemer, 2008). Inconsistent findings for associations between reappraisal, acceptance and depressive symptoms and for the effectiveness of cognitive reappraisal and acceptance in reducing negative emotions in depression indicate that more research is needed to identify strategies that help down-regulate negative affective states and could be targeted in specific interventions for depression.

A strategy that has a long tradition in Buddhist approaches to enhance well-being (Gilbert & Irons, 2004) but has only recently gained the attention of mental health and well-being researchers is compassionate self-support (e.g., Neff, 2003). Compassionate self-support entails being kind and understanding toward oneself in instances of pain or failure rather than being harshly self-critical; perceiving one's experiences as part of the larger human experience rather than seeing them as isolating; and holding painful thoughts and feelings in mindful awareness rather than over-

identifying with them (Neff, 2003). Previous cross-sectional and longitudinal studies using individuals from the general population (MacBeth & Gumley, 2012; Neff & McGeehee, 2010; Neff, Rude, & Kirkpatrick, 2007; Shapira & Mongrain, 2010) and a clinical inpatient sample (Berking, Wuperman, Reichardt, Pejic, Dippel, & Znoj, 2008) linked higher levels of habitual use of self-compassion to more positive emotions, less negative emotions, and fewer depressive symptoms. Recently, some psychotherapy treatments for mental disorders have begun to systematically use self-compassion to help patients overcome mental health problems. Feasibility and pilot trials (Gilbert & Procter, 2006; Laithwaite, O'Hanlon, Collins, Doyle, Abraham, & Porter, 2009; Lucre & Corten, 2012; Mayhew & Gilbert, 2008) provide preliminary support for the effectiveness of compassion-focused therapy, which is currently the only treatment that specifically focuses on enhancing self-compassion to reduce symptoms in clinical populations (Gilbert, 2010). Preliminary support for health-promoting effects of self-compassion also comes from positive outcomes of other treatments that include self-compassion components, e.g., the mindful self-compassion program (Neff & Germer, 2013) or the affect regulation training, (Berking, 2008; Berking & Whitley, 2014). These adjunctive treatments, however, teach at least one other skill in addition to self-compassion (e.g., mindfulness, acceptance of emotions, analyzing and regulating emotions, etc.). The extent to which the effects of these interventions can be attributed to enhancing self-compassion as opposed to increases in other skills has not been targeted in previous research. To date, one study has experimentally tested effects of self-compassion on depressed mood (Diedrich, Grant, Hofmann, Hiller, & Berking, 2014). In this study, self-compassion was more effective than a neutral waiting condition and, depending on the participants' initial levels of depressed mood, equally or more effective than reappraisal or acceptance in decreasing depressed mood in an MDD sample (Diedrich et al., 2014).

Although these findings suggest that self-compassion is an adaptive ER strategy to decrease depressed mood, no study has yet investigated the effectiveness of self-compassion in recovered depressed individuals and few studies have compared the effectiveness of self-compassion to other adaptive ER strategies. The primary aim of this study was to compare the effects of self-compassion on decreases in depressed mood in formerly, currently, and never depressed individuals to the more established ER strategies of acceptance and reappraisal. Building on promising results of health promoting effects for self-compassion in healthy and self-compassion trained (e.g., Gilbert & Procter, 2006; Laithwaite et al., 2009; Lucre & Corten, 2012; Mayhew & Gilbert, 2008) or untrained (Diedrich et al., 2014) clinical samples in previous research, formerly, currently, and never depressed individuals were expected to successfully apply instructed self-compassion. Further considering mixed results for reappraisal and acceptance in previous re-

search, we tested the hypotheses that self-compassion would be equally or more effective in reducing negative affect than (1) a neutral waiting condition, (2) acceptance, and (3) reappraisal.

Method

Participants

Three groups of participants ($n = 30$ each) took part in the study: recovered depressed (RMD), currently depressed (MDD), and never depressed control (NC) participants. MDD and NC participants were matched to the RMD group with regard to age, sex, and level of education. Participants were solicited in two outpatient treatment centers in Germany as well as through advertisements posted in numerous locations within the local communities and in local newspapers. Participants were assigned to the groups on the basis of a Structured Clinical Interview for DSM-IV (SCID; German version: Wittchen, Wunderlich, Gruschwitz, & Zaudig, 1997) that was conducted by trained interviewers.

Participants in the RMD group had experienced at least one major depressive episode in the past and had been remitted for at least two months prior to inclusion in this study. Individuals in the MDD group were diagnosed with MDD as the primary diagnosis. NC participants did not meet criteria for any mental disorder and had no history of MDD at the time of the study. Further inclusion criteria for all groups included age 18 or above and sufficient German language skills. Exclusion criteria included acute risk for suicide or comorbid psychotic, substance-related, bipolar disorders, organic brain or other severe medical disorders, and severe cognitive impairments. Other comorbid disorders in the MDD and RMD groups were allowed to increase validity of the study.

Procedure

All participants were run individually. The experiment was administered on a Dell Optiplex 740 MT computer using Presentation software (Neurobehavioral Systems, Albany, CA). The entire procedure took approximately 60 minutes. All participants received € 10 in cash in return for their participation. Written informed consent was obtained from all participants prior to the experimental session. All procedures were approved by the ethics committee of the Universities of Mainz and Marburg.

Depressed mood was induced at four different time-points and participants were instructed after each mood induction to wait, employ self-compassion, reappraise the situation, or accept their negative emotions. To control for potential sequence effects, we utilized all possible permutations of regulation sequences across the subjects ($Ns = 24$). To help participants recover from persisting negative mood, a positive mood induction procedure was completed at the end of the experimental procedure and participants were offered to talk to the experimenter about their

experiences. Participants completed a short depression scale before the experiment and a post-survey in which they were asked how well they were able to follow the instructions and what they had been doing in the waiting condition.

Material

Mood measures. Participants rated their level of depressed mood (“How depressed do you feel at the moment”) on visual analog scales (VAS) at the beginning of the experiment (baseline rating), before and after each of the four mood inductions and regulation instructions. Computer-based VAS were composed of two vertical lines anchored on one end by the words “*not at all*” (= 0) and on the other end by the word “*completely*” (= 100). Participants were asked to place a mark across the line at the point that best described their answer.

Mood Induction. Depressed mood was induced by music (extract from “Adagio in G minor” by Tomaso Giovanni Albinoni) and negative self-referential statements using a modified Velten method (Velten, 1968). Examples of statements that were presented on the computer screen during the induction phase include, “I think I am a loser”, “No one seems to be really interested in me”. The mood inducing music was played as background music. The effectiveness of the Velten procedure (Gerrards-Hesse, Spies, & Hesse, 1994; Westermann, et al., 1996), of mood-suggestive music (Westermann et al., 1996), and of the combination of both methods has been demonstrated in previous studies (Westermann et al., 1996).

Mood Regulation. ER instructions were given orally via loudspeakers. The instructions for self-compassion and acceptance were abbreviated versions of audio sequences used in the affect regulation training (ART; Berking, 2008; Berking & Whitley, 2014). The effectiveness of the ART in increasing acceptance and compassionate self-support has previously been demonstrated (e.g., Berking, et al., 2008; Berking, Meier, & Wupperman, 2010; Berking, Ebert, Cuijpers, & Hofmann, 2013). The instruction for cognitive reappraisal aimed to represent strategies typically taught in cognitive therapy (e.g., Beck, 2011). A detailed description of the self-compassion, acceptance, and reappraisal instructions is given in the Appendix. For the waiting condition, participants read the following instructions on the computer screen: “We will now have a break of 5 min. Please remain seated and try to relax during this time. The program will signal the end of the break to you”.

Dysphoria. Prior to the experiment, participants were asked to complete the brief Patient Health Questionnaire mood scale (PHQ-9; Löwe, Spitzer, Zipfel, & Herzog, 2002). The PHQ-9 is a short self-report scale designed to measure depressive symptom severity. Participants indicate on a four-point Likert scale (0 = “*not at all*”; 3 = “*nearly every day*”) how frequently they have experi-

enced each of the nine DSM-IV criteria for major depression (e.g., “little pleasure or interest in doing things”, “feeling down, depressed, or hopeless”) during the past two weeks. Associations with other depression and mental health scales supported the measure’s convergent and discriminant validity in clinical samples (Gräfe, Zipfel, Herzog, & Löwe, 2004) and in the general population (Martin, Rief, Klaiberg, & Braehler, 2006). Excellent internal consistency scores were reported in previous studies using representative population-based (Rief, Nanke, Klaiberg, & Braehler, 2004) and clinical (Löwe et al., 2004) samples. Cronbach’s alpha in our study was .87 (RMD), .80 (MDD), .77 (NC).

Results

Participant Characteristics

In each of the conditions, 66.67 % of the participants were female and 60.00% held the highest level of education in Germany (“Abitur”). The mean age of participants was 39.50 ($SD = 12.13$) in the RMD, 40.93 ($SD = 11.92$) in the MDD, and 39.17 ($SD = 12.42$) in the NC group. As expected, participants in the three groups did not differ significantly in age, $F(2, 87) = .18, p = .84$. Participants in the RMD group had experienced an average of 1.47 episodes of depression ($SD = .63$; *range*: 1-3). The last depressive episode had occurred on average 32.87 months before the assessment ($SD = 37.10$ months; *range*: 2-132 months). The mean number of previous depressive episodes reported in the MDD group was 2.38 ($SD = 1.27$; *range*: 1-5). RMD and MDD participants did significantly differ in the mean number of previous episodes reported ($t(54) = 12.28, p < .01$). Frequent comorbid disorders in the MDD and RMD groups included: dysthymic disorder (6.7 % MDD), panic disorders and agoraphobia (16.7 % MDD, 6.7 % RMD), social phobia (23.3 % MDD), specific phobia (3.3% MDD), posttraumatic stress disorder (3.3% MDD), eating disorders (3.3% MDD, 3.3% RMD), sexual dysfunctions (3.3% MDD), and personality disorders (6.7 % MDD). In line with our group selection criteria, the MDD participants had higher PHQ-9 scores than did both the RMD ($t(51) = .89, p < .01$), and NC ($t(51) = 1.11, p < .01$) participants. No significant differences in PHQ-9 scores existed between RMD and NC individuals ($t(58) = .23, p > .05$).

Mood Induction.

To examine the effectiveness of the applied mood induction procedure on VAS levels of depressed mood, we conducted a 2 x 4 x 3 repeated model analysis of variance (ANOVA). Time (before mood induction, after mood induction) and Induction Number (first, second, third, fourth induction) were included in the analysis as within-subjects variables and Group (RMD, MDD, NC) as a between-subjects factor. This analysis yielded a significant increase in depressed mood over time ($F(2, 87) = 17.36, p < .01$, partial $\eta^2 = .17$). Non-significant main and interaction effects for

Induction Number and Group indicate the effectiveness of the negative mood inductions across participants and consecutive mood inductions ($F_s < 2.001.59$, $p_s < .15$, partial η^2 's $< .06$).

Mood Regulation

Means and standard deviations of depressed mood before and after the regulation instructions are given in Table 1.

(Table 1 about here)

We predicted that RMD, MDD, and NC participants would exhibit similar or greater improvement in their depressed mood in the self-compassion compared to (1) the waiting condition, (2) the acceptance condition, and (3) the reappraisal condition. To test these hypotheses, we compared the effects of self-compassion in RMD, MDD, and NC participants to mood improvements in the other regulation conditions using separate 2 x 2 x 3 repeated measures ANOVAs. Time (before mood induction, after mood induction) and Strategy (self-compassion vs. waiting; self-compassion vs. acceptance; self-compassion vs. reappraisal) were included in these analyses as within-subjects factors; Group (RMD, MDD, NC) served as a between-subjects factor.

Self-compassion vs. waiting. The comparison of self-compassion with the neutral waiting condition showed significant effects for Time ($F(1, 87) = 17.08$, $p < .01$, partial $\eta^2 = .16$) and Strategy ($F(1, 87) = 4.21$, $p = .04$, partial $\eta^2 = .05$). No significant effects were revealed for Group. These results indicate that time had an overall effect on participants' depressed mood and that decreases in depressed mood varied between the self-compassion and the waiting condition. Across participants, decreases in depressed mood were significantly greater in the self-compassion than in the waiting condition ($d = .16$).

Self-compassion vs. acceptance. The comparison of self-compassion and acceptance also revealed significant effects for Time ($F(1, 87) = 22.26$, $p < .01$, partial $\eta^2 = .20$) and Strategy ($F(1, 87) = 5.02$, $p = .03$, partial $\eta^2 = .06$). Across participants, decreases in depressed mood were significantly greater in the self-compassion than in the acceptance ($d = .10$) condition.

Self-compassion vs. reappraisal. The comparison of self-compassion and reappraisal yielded a significant effect for Time ($F(1, 89) = 9.38$, $p < .01$, partial $\eta^2 = .10$), a significant interaction of Time and Strategy ($F(1, 87) = 7.81$, $p < .01$, partial $\eta^2 = .08$) and a significant three-way interaction of Time, Strategy, and Group ($F(2, 87) = 3.59$, $p = .03$, partial $\eta^2 = .08$). To further examine the three-way interaction, we conducted 2 x 2 repeated measures ANOVAs with Time (before mood induction, after mood induction) and Strategy (self-compassion vs. reappraisal) as within-subjects factors separately for the three groups. These analyses yielded a significant interaction of Time and Strategy in the RMD ($F(1, 29) = 6.76$, $p = .02$, partial $\eta^2 = .19$) and NC ($F(1, 29) = 6.03$, $p = .02$,

partial $\eta^2 = .17$) groups. As can be seen in Figure 1, mood improvements were significantly greater following the self-compassion than the reappraisal instructions in both the RMD ($d = .41$) and the NC ($d = .24$) groups. The lack of a significant interaction of Time and Strategy in the MDD group ($F(1, 29) = .41, p = .53$, partial $\eta^2 = .01$) indicates that self-compassion and reappraisal were equally effective in MDD participants.

Discussion

The present study was designed to experimentally evaluate the effectiveness of self-compassion as compared to a waiting condition, cognitive reappraisal, and acceptance in reducing depressed mood in RMD, MDD, and NC individuals. Consistent with our hypotheses self-compassion led to a significantly greater reduction of previously induced depressed mood than did the waiting or acceptance conditions. In RMD and NC participants, decreases in depressed mood were significantly greater for self-compassion than reappraisal. In MDD participants, the analyses did not yield significant differences between self-compassion and reappraisal.

The finding that self-compassion was superior to the waiting condition indicates that effects of self-compassion exceed time-effects and the effects of spontaneous regulation. Support for self-compassion as an adaptive ER strategy that helps down-regulating depressed mood is consistent with previous research on self-compassion and positive mental health outcomes (e.g., Gilbert & Procter, 2006; Laithwaite et al., 2009; Lucre & Corten, 2012; Diedrich et al., 2014). Our study extends previous research on self-compassion as it is the first study to experimentally examine the effectiveness of self-compassion in decreasing depressed mood in RMD individuals, and it is the first study to find evidence that self-compassion directly helps RMD individuals to reduce depressed mood.

Our finding that self-compassion is more effective than acceptance and at least as effective as reappraisal fit in with mixed results for reappraisal and acceptance in previous research. In a study on associations between cognitive ER skills and depressive symptoms in healthy samples of different ages and a psychiatric clinical sample, for example, more frequent use of positive reappraisal was insignificantly or positively linked to higher levels of depression in adolescent samples and, across groups, acceptance was associated with greater depressive symptom severity (Garnefski & Kraaij, 2006). Insignificant (Garnefski et al., 2001) or positive (Martin & Dahlen, 2005) associations between the use of acceptance and depressive symptoms were replicated in further studies on healthy samples. Moreover, as reviewed in the introduction, some previous experimental studies even failed to demonstrate a significant superiority of the effectiveness of reappraisal (Gross, 1998) and acceptance (Liverant et al., 2008) in comparison to suppression which

has frequently been discussed as a maladaptive ER strategy and has been linked to various mental disorders (e.g., Aldao et al., 2010).

If replicated in future research, the findings from the present study have important clinical implications. Systematically enhancing the ability to modify emotions through reappraisal has a long tradition in cognitive therapy (Beck, 2011) and fostering acceptance has been the focus of the so-called third wave of behavioral therapy (Hayes, 2004; Hayes, Strosahl, Wilson, 1999) and is included in several interventions such as mindfulness-based therapies (e.g., Teasdale et al., 2000). The systematic use of self-compassion in developing treatments for mental disorders is still a comparatively new approach in evidence-based treatment development for MDD. Previous research on treatments for MDD has provided ample support for the effectiveness of established strategies, including reappraisal and acceptance (e.g., Arnow & Constantino, 2003; Cuijpers, et al., 2013; Hollon & Ponniah, 2010; Beshai, et al., 2011; Shea et al., 1992; Vittengl, et al., 2007). However, previous studies also demonstrate the limitations of available interventions. For example, many patients fail to attain clinically significant changes (Casacalenda, Perry, & Looper, 2002) and among those who do respond, many continue to suffer from subthreshold symptoms (Judd, 1997) and are likely to relapse within two years after treatment (e.g., Beshai et al., 2011; Vittengl, et al., 2007). Our finding that self-compassion is superior to acceptance and equally (MDD) or more (NC, RMD) effective than reappraisal for decreasing depressed mood encourages research on how this strategy can be used to enhance the efficacy and stability of current depression treatments. In previous research, compassion-focused therapy that explicitly addresses self-compassion (Gilbert, 2010; Gilbert & Procter, 2006; Laithwaite et al., 2009; Lucre & Corten, 2012; Mayhew & Gilbert, 2008) and other interventions including self-compassion components (Berking, 2008; Berking & Whitley, 2014; Neff & Germer, 2013) have been supported as effective in decreasing depressive symptom severity. Future research should work to evaluate self-compassion focused therapy in large randomized clinical trials with patients meeting criteria for MDD. For adjunctive treatments aiming to increase self-compassion as well as other skills, such as the affect regulation training (Berking, 2008; Berking & Whitley, 2014) or mindfulness-based treatment (e.g., Teasdale et al., 2000), future studies should explore the extent to which changes in self-compassion mediate treatment effects such as decreases in depression symptom severity. Finally, future studies should explicitly test stand-alone as well as augmentation effects of self-compassion interventions on other treatments such as cognitive behavioral (e.g. Beck, 2011) or mindfulness-based treatment (e.g., Teasdale et al., 2000) for depression. Considering greater mood improvements in the self-compassion than the reappraisal condition in NC and RMD individuals in our study, spe-

cial emphasis should be put on the potential of self-compassion interventions to prevent the onset or recurrence of MDD.

Although our findings on self-compassion promise to increase our understanding on protective factors for MDD, several limitations bear noting. First, the effects of instructed ER on emotion relied on self-reported emotion. Considering the multidimensionality of emotion (Scherer, 2004), future studies should extend measures of emotion to behavioral expression and physiological responses. Second, this study focused on only three ER strategies (i.e., self-compassion, acceptance, reappraisal). Future studies should extend our work by including ER strategies such as engaging in positive activities (Cuijpers, van Straten, & Warmerdam, 2007), recalling positive memories, or distraction (e.g., Joormann, Siemer, & Gotlib, 2007; Joormann & Siemer, 2004). Third, despite careful selection of participants (i.e., matching with regard to relevant characteristics, recruiting of participants from the general population), the modest sample size should be noted. Future studies using larger samples should examine whether the absence of differences between self-compassion and reappraisal conditions in the MDD group, for example, is real or due to methodological issues such as low statistical power. , Considering self-reported difficulties in displaying self-compassion when suffering from negative emotions in MDD individuals in previous studies (Gilbert, Baldwin, Irons, Baccus, & Palmer, 2006; Hofmann, Grossman, & Hinton, 2011), future studies should also test how well MDD compared to RMD and NC participants can follow self-compassion instructions and they should compare effects of self-compassion and reappraisal on depressed mood after training for these ER skills. In this context, it is of note that our instruction for cognitive reappraisal aimed to represent strategies typically taught in cognitive therapy. To minimize treatment effects of reappraisal on the outcomes of our experiment, we tested MDD participants from outpatient treatment centers after the intake assessment and before the start of depression therapy. Nevertheless, we cannot rule out effects of past reappraisal interventions and potential associations between group differences in the number of previous episodes and differences in treatment experiences as a possible explanations for insignificant differences between self-compassion and reappraisal in MDD participants in our study.

Despite these limitations, this study indicates that self-compassion can effectively be applied by RMD, MDD, and NC participants. Self-compassion interventions thus hold considerable therapeutic promise in restoring or maintaining mental health and in diminishing the health burden associated with MDD.

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Appendix

The self-compassion instructions were as follows: “Try to experience very clearly which feelings have been activated by these statements. Try to see yourself from an outsider’s view from the perspective of a compassionate, friendly observer, to imagine how you look, sitting here in front of the computer. Maybe you can notice from the outside which feeling upsets you at the moment. Try to perceive now how the negative feelings are reflected in your posture and facial expression. Then, try to let this warm and strong feeling of compassion towards yourself come up in you; this warm and strong feeling of compassion, which is connected with the desire to help yourself. If you sense this feeling, you can start approaching yourself in your imagination and signal to yourself that you are there for you. Maybe you can say to yourself: ‘It is understandable that you feel that way. You are facing a challenging situation. You experience a natural response to depressing thoughts. But I am with you. I am going to help you. You are not alone.’ In the next step you can start encouraging yourself internally: ‘Come on, you can do this. You can pull yourself out of this mood again. You have already accomplished so much; you will also be able to deal with this.’ If you want, you can also rest your hand on your shoulder in your imagination or hug yourself and comfort and support yourself this way. Then try to cheer yourself up by internally giving yourself a friendly smile. While smiling in a friendly manner at yourself, you can check if there are other things you want to tell yourself; things that would energize and encourage you to cheer you up. Take your time to think of some sentences and tell them to yourself. When the moment is right for you, say bye to yourself in this situation. Make yourself aware that this is no farewell forever and that you can come back to yourself every time. Perhaps there is still something you want to tell yourself for farewell. If so, do this now before you come back from this exercise to the here and now, slowly, in your own way.”

In the cognitive reappraisal condition, participants received the following instructions: “Please read the statements closely again. Choose one statement with which you can identify and which influences your mood in a particularly negative way and click on it. Read it over again and take your time contemplating it. What are the consequences of thinking this way? How do you feel if you think like that? Does this thought help you feel how you want to? And how does it influence your behavior if you think like that? Does this thought help you behave like you want? Which arguments validate this statement? Can you think of situations that reinforce your statement? Which arguments speak against it? Can you also remember situations that question the validity of the statement? Now try to formulate – on the basis of your chosen statement – a more positive statement, which may be more helpful for you. Feel free to test different versions until you have

found one that makes you feel better. If you want, say this new, positive statement a few times aloud, until you notice that you are getting into a better mood.”

Instructions in the acceptance condition were: “Please focus your attention on what you are feeling at the present moment. Try to label the perceived feelings and to rate their intensity on a scale from 0 to 10. Observe these feelings for a while. Try to let them be without controlling them. If you notice that you digress or that other thoughts come to mind, just make a mental note of your thoughts or your digression, and then focus on your feelings again. Give yourself the permission to experience these feelings, even if they are unpleasant. Now try to set the acceptance of your feelings as a goal. Try to underpin this with a statement, e.g. ‘Now it is important to accept my feelings and to give me the permission to feel them because down-regulating emotions may take some time.’ Then continue with the exercise by activating a positive attitude towards your feeling by completing the sentence ‘This feeling also has a positive side: it wants to tell me that...’ to yourself. Now make yourself aware that you can also stand problematic feelings: Make yourself aware that you have already endured negative feelings over a longer period of time in the past. Consider that feelings are transient phenomena and that feelings will not last forever. Feelings come and go; unpleasant feelings will not last forever.

Table 1

Means and Standard Deviations of Depressed Mood Before and After Regulation Instructions

	Self-Compassion		Waiting		Acceptance		Reappraisal	
	Pre <i>M (SD)</i>	Post <i>M (SD)</i>	Pre <i>M (SD)</i>	Post <i>M (SD)</i>	Pre <i>M (SD)</i>	Post <i>M (SD)</i>	Pre <i>M (SD)</i>	Post <i>M (SD)</i>
RMD	20.13 (27.65)	10.90 (17.79)	14.17 (21.79)	11.00 (18.56)	15.53 (22.47)	9.23 (14.18)	11.53 (17.05)	13.80 (19.36)
MDD	51.27 (32.30)	46.83 (29.28)	49.07 (32.29)	43.00 (28.61)	47.80 (31.22)	43.27 (29.28)	51.63 (31.29)	45.13 (28.02)
NC	15.60 (27.20)	9.40 (18.37)	12.30 (22.47)	9.00 (16.18)	11.43 (19.91)	7.17 (12.02)	8.57 (15.51)	11.40 (18.37)

Note. RMD = remitted depressed participants. MDD = currently depressed participants. NC = never depressed control participants.

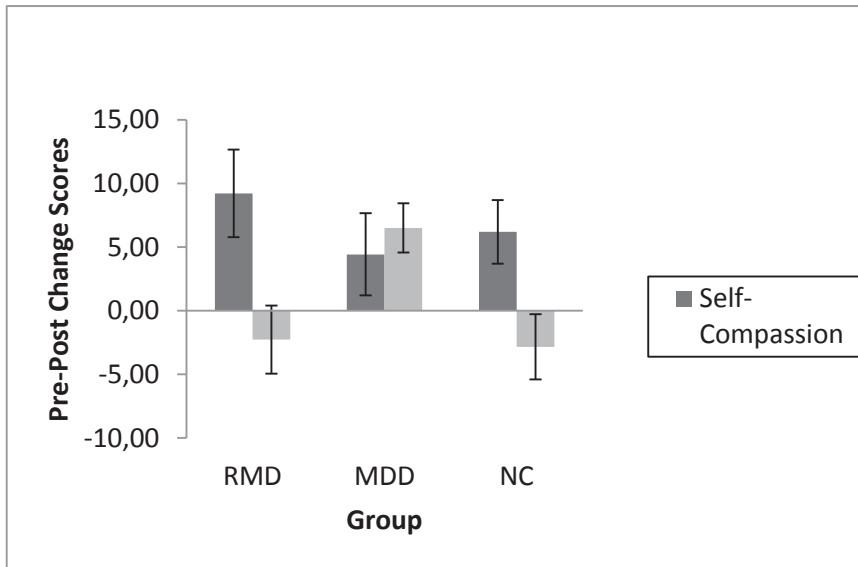


Figure 1. Decreases in depressed mood following self-compassion and reappraisal instructions presented for remitted depressed (RMD), currently depressed (MDD), and never-depressed control (NC) participants. Error bars represent one standard error.

7.3 Studie III

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Running Head: EMOTION REGULATION AND NEGATIVE AFFECT IN MDD

Adaptive Emotion Regulation Predicts Decrease in Negative Affect over the Course of Depression Treatment

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Abstract

Background: Sustained negative affect (NA) is a core symptom as well as a putative risk and maintenance factor for Major Depressive Disorder (MDD). To examine factors that facilitate mood recovery in individuals with MDD, we aimed to clarify prospective associations between different components of adaptive emotion regulation (ER) and subsequent reduction in state NA during treatment for depression. *Methods:* We assessed components of adaptive ER and levels of state NA at four times over the first three weeks of treatment in an inpatient MDD sample ($N = 196$). *Results:* Using latent change score modeling, overall adaptive ER negatively predicted subsequent reduction in state NA (but not vice versa). Exploratory analyses indicated that emotional understanding, modification, acceptance and tolerance as well as the abilities to confront and support one-self in distressing situations were significantly associated with a subsequent reduction of state NA, whereas emotional awareness, clarity, and the use of bodily sensations to identify emotions were not. *Conclusions:* Adaptive ER helps reduce NA in MDD but specific components of adaptive ER differ with regard to their prospective associations with NA. Future research should clarify how components of adaptive ER can be enhanced with specific interventions.

Keywords: negative affect, depression, emotion regulation, treatment, latent change score model

Adaptive Emotion Regulation Predicts Decrease in Negative Affect over the Course of Depression Treatment

Emotional disorders, including Major Depressive Disorder (MDD), are associated with elevated levels of negative affect (NA) ⁽¹⁻³⁾. Gross ⁽⁴⁾ defines NA as a broad category of aversive inner states, including undifferentiated psychophysiological arousal (e. g., tension, stress), moods (e. g., depressed mood, dysphoric mood), and emotions (e. g., anxiety, anger, sadness, shame, guilt). Some aspects of NA (e.g., depressed mood, sadness, feelings of guilt) are explicitly included in the (core) diagnostic criteria of MDD ⁽⁵⁾ and thus in the most common measures of depression ⁽⁶⁻⁸⁾. Other components of NA such as anxiety ⁽⁹⁾, anger ⁽¹⁰⁾, and stress ^(4, 11) have been linked to MDD in previous research. Studies on aggregated indicators of state NA have replicated positive associations between NA and MDD ⁽¹²⁻¹⁴⁾. Longitudinal studies suggest that increased levels of state NA are not only a concomitant but an important antecedent of depressive episodes ⁽¹⁵⁻¹⁸⁾.

In cognitive theories of depression, negative affective states have been suggested to cue cognitive processes that foster an escalation of negative mood which over time can culminate in a depressive episode ⁽¹⁹⁻²²⁾. Several investigators have demonstrated mood-congruent biases in cognitive processes such as attention ⁽²³⁾, interpretation ^(24, 25), memory ⁽²⁶⁾, and executive functioning ⁽²⁷⁻²⁹⁾ and have linked these biases to depression and sustained negative affective states. Considering the role of state NA for MDD, we need to examine factors that facilitate mood recovery during the treatment for MDD. With knowledge of such factors, interventions can be developed that effectively foster specific abilities to down-regulate state NA and may thus help restore and maintain mental health.

In an attempt to improve current treatments for MDD, some authors have emphasized the role of adaptive emotion regulation (ER) ^(1, 30). ER refers to processes involved in attempts to change the quality, the intensity, or the duration of undesired affective states in accordance with situational demands, biological needs, and individual goals ⁽³¹⁻³³⁾. To facilitate the use of the broad concept of ER in clinical contexts, Berking and colleagues ⁽³⁴⁻³⁶⁾ have developed the adaptive coping with emotions (ACE) model. This model synthesizes various ER theories ⁽³⁷⁻³⁹⁾ and conceptualizes adaptive ER as the situation-adapted interplay among the following components: (1) the ability to be consciously aware of emotions, (2) the ability to correctly identify body sensations and (3) label emotions, (4) the ability to identify what has caused and maintains one's present emotions, (5) the ability to actively modify emotions in an adaptive manner, (6) the ability to accept and (7) tolerate undesired emotions when they cannot be changed, (8) the ability to approach and confront situations likely to trigger negative emotions if this is necessary to attain personally relevant goals, and (9) the ability to provide compassionate self-support when working to cope with challenging emotions.

Findings from previous cross-sectional⁽⁴⁰⁻⁴²⁾ and longitudinal studies^(43, 44) indicate that the nine individual components as well as an aggregated indicator of overall adaptive ER are negatively linked with both state NA and depressive symptom severity. Improvements of adaptive ER during psychotherapeutic treatment were associated with decreases in state NA in inpatients treated for a variety of disorders⁽⁴¹⁾ and subsequent decreases of depressive symptom severity in a MDD sample⁽⁴⁴⁾. Finally, an intense training of adaptive ER (the affect regulation training; ART)^(34, 36) has been shown effective in reducing state NA and depressive symptoms in a mixed clinical⁽⁴¹⁾ and a MDD sample⁽³⁰⁾.

Although these findings suggest that increases in adaptive ER including the components of the ACE model may contribute to the reduction of state NA during the treatment of depression, they are preliminary for at least two reasons. First, studies merely reporting significant cross-sectional associations^(41, 42) or associations between improvements in adaptive ER and a reduction of state NA⁽⁴⁰⁾ do not allow clarifying the direction of effects. Second, studies investigating reciprocal prospective associations of adaptive ER and state NA⁽⁴³⁾ have not been conducted in samples with clearly determined diagnostic status. Finally, findings on the efficacy of adjunctive interventions targeting ER deficits are based on studies that did neither control for common factors^(30, 41) nor investigated whether changes in ER mediated the effects of the intervention on state NA. Thus, it is unclear whether the effects of these interventions on decreases in state NA were caused by the trainings' positive effects on adaptive ER.

In the present study we assessed components of adaptive ER as specified in the ACE model and levels of negative affective states, including stress/tension, anxiety, anger, sadness, and depressed mood, repeatedly in a sample of individuals receiving inpatient treatment for MDD. We used a latent change score (LCS) modeling approach^(45, 46) to clarify whether overall adaptive ER would predict subsequent changes in state NA during the treatment for MDD. Additionally, we explored whether the strength of associations would differ across different components of adaptive ER.

Method

Procedures

Data were collected in an inpatient clinic for mental health in Germany between 2010 and 2012. Study participants completed questionnaires to assess components of adaptive ER and state NA at intake and after the first three subsequent weeks of inpatient treatment. Questionnaires were presented online. Data entry, transmission and storage were strictly protected against unauthorized access. All study procedures were in compliance with the human research guidelines of the Helsinki Protocol⁽⁴⁷⁾ and were approved by the ethics committee of the University of Marburg.

Patients were included in the present study if they provided informed consent, currently met DSM-IV criteria for MDD ⁽⁴⁸⁾, were at least 18 years old, and had sufficient German language skills. Patients were excluded from the present study if they met criteria for current alcohol or drug addiction, psychoses, bipolar disorder, brain damage or other severe somatic disorders requiring other treatments. In order to maximize the external validity of the findings and to ensure the representativeness of the sample, there were no further exclusion criteria regarding comorbidity or antidepressant medication. The Structured Clinical Interview for DSM-IV (SCID; German Version) ⁽⁴⁸⁾ was used to assess clinical status during the initial evaluation. The interviews were conducted by raters with Bachelor's degrees or above in clinical psychology who had all received extensive training in the SCID interview (18 hours of training by a certified trainer) and who were all supervised by experienced psychotherapists (either psychologists or physicians with graduate degrees or above in psychology or medicine). Interrater reliability for the affective disorder section was assessed for 4% of the total sample. A Cohen's kappa of .85 indicated good reliability of the diagnostic section relevant for the present study.

Participants

The final study sample consisted of $N = 196$ inpatients currently meeting DSM-IV criteria for MDD. On average, participants were 46.33 years old ($SD = 10.70$; $range = 18.07 - 70.62$); about half of the patients were female (51.2 %). Level of school education was as follows: 1.1 % had not finished school; 17.6 % had completed the lowest education level ("Hauptschule"), 36.3 % the second highest level ("Realschule"), and 35.7 % the highest level of education ("Abitur") in Germany; 9.3 % had a university degree. Most participants were married (51.8 %; single: 29.5 %; divorced: 15.5 %; widowed: 3.1 %). The average stay of participants in the clinic was 7.34 weeks ($SD = 4.32$). About half of the participants (53.0 %) met criteria for at least one other disorder. Frequent comorbid disorders included: phobic disorders (36.2 %), generalized anxiety disorder (10.2 %), panic disorders (9.2 %), obsessive-compulsive disorder (8.2 %), posttraumatic stress disorder (7.7 %), somatoform disorders (24.0 %), dysthymic disorder (7.1 %), and personality disorders (9.7 %).

Treatment

During the considered first three weeks of inpatient treatment, all participants received at least one 50-min session of individual therapy and four 50-min sessions of group psychotherapy per week. Interventions were based on a cognitive behavioral rationale ^(49, 50). All of the participants received depression treatment during the first three weeks (i.e., during the study period). Treatment for comorbid disorders, such as anxiety disorders, was provided after the first three weeks if necessary. Psychological interventions were supplemented with sports and arts therapy as well as medical treatment. Psychological treatment was delivered by experienced therapists and therapists in training – all of whom had graduate degrees or above in psychology or medicine. Supplementary treat-

ments were delivered by trained co-therapists (nurses, sports and art therapists, physiotherapists) and medical doctors. Treatment integrity was ensured through regular team meetings and weekly supervisions by licensed senior therapists. Treatment approaches that explicitly and exclusively targeted increases in adaptive ER^(34; 39, 51) were not included in any of the interventions.

Measures

Emotion regulation. We used the 27 items of the German version of the Emotion Regulation Skills Questionnaire (ERSQ)⁽⁴²⁾ to assess levels of adaptive ER. On 5-point scales ranging from 0 = “*not at all*” to 4 = “*almost always*” participants indicate the extent to which items referring to the nine components of adaptive ER as included in the ACE model^(34, 36, 42) applied to them within the past week. Sample items of the nine scales include, “... *I was able to experience my feelings consciously*” (Awareness), “... *I had a clear physical perception of my feelings*” (Sensations), “... *I knew what emotions I was feeling in the moment*” (Clarity), “... *I understood my emotional reactions*” (Understanding), “... *I was able to influence my negative feelings*” (Modification), “... *I was OK with my feelings, even if they were negative*” (Acceptance), “... *I could endure my negative feelings*” (Tolerance), “... *I did what I intended to do despite my negative feelings*” (Readiness to Confront), “... *I tried to reassure myself during distressing situations*” (Self-Support). The total score of adaptive ER is computed as the mean of all 27 items. In previous validation studies, all scales have demonstrated convergent and discriminate validity, including strong positive correlations with constructs related to ER⁽⁴²⁾. Sensitivity to change has been demonstrated in several samples of patients undergoing psychotherapeutic treatment⁽⁴²⁾. Good internal consistencies and adequate retest-reliability was reported for both the total score and the subscales of the ERSQ⁽⁴²⁾. High internal consistencies for the ERSQ total score ($\alpha_{T1/2/3/4} = .97/.97/.97/.96$) and at least acceptable scores for the ERSQ subscales ($\alpha_{T1/2/3/4} = .82-.91/.77-91/.85-92/.78-99$) were supported for all four assessment points in this study (also see Table 1).

Negative affect. We used the mean score of specific negative affective states as assessed by the Emotion Regulation Skills Questionnaire- Emotion Specific (ERSQ-ES)⁽⁵²⁾ as an indicator of state NA. Within the ERSQ-ES, participants are asked to rate the intensity of stress/tension, anxiety, anger, sadness, depressed mood, and other negative affective states during the past week on ten point Likert scales. Sound psychometric properties have previously been reported for the ERSQ-ES⁽⁵²⁾. Cronbach’s Alpha for our NA scale was good across assessments ($\alpha_{T1/2/3/4} = .81/.83/.83/.80$).

Statistical Analyses

Preliminary analyses aimed to replicate findings from previous studies. These included the computation of Pearson’s correlations for the cross-sectional associations of levels of adaptive ER and state NA at all assessment points and for the associations between changes in adaptive ER and state NA during treatment. To test our primary hypothesis that an increase in adaptive ER would be associated

with a subsequent reduction of state NA, we used LCS analyses^(44, 45). In our primary analyses, the ERSQ total score served as the empirical indicator of general adaptive ER. Exploratory analyses on ERSQ subscales served to examine potential differences among specific components of adaptive ER. Within subscale analyses, Benjamini-Hochberg procedure⁽⁵³⁾ was applied to control for potential effects of Type I error accumulation in multiple testing. To deal with missing values, we employed full information maximum likelihood (FIML) estimation in Mplus; SPSS 19.0 (SPSS Inc., Chicago, IL, USA) and Mplus⁽⁵⁴⁾ were used as statistical software packages.

Latent change score modeling. LCS models have been introduced into treatment outcome research to help identify relevant predictors of change by clarifying reciprocal pathways between two (or more) variables over time^(44, 55-60). In bivariate LCS approaches, time-lagged associations between Variable A and subsequent changes of Variable B and time-lagged associations between Variable B and subsequent changes of Variable A are estimated in the same model. As indicated in Figure 1, the trajectory for true latent scores of both variables is comprised of an initial level of the unobserved score (intercept) and the accumulation of true latent changes in the unobserved variable. Latent change scores (Δ NA, Δ ER) are implied as a function of a constant change factor (slope) referring to systematic change over time, a proportional parameter (β), representing influence of the same variable at the previous measurement and a coupling parameter (γ), representing influence of the other variable at the previous time point. Coupling parameters describe dynamic aspects of the model, because they represent the impact of one variable at time $t-1$ on the other variable at the next point of time t ^(4, 61-63).

Test of nested models. For the LCS model on overall adaptive ER and models with significant coupling parameters from specific components of adaptive ER to subsequent changes in state NA, we compared model fit across the unrestricted model and three nested models that result from restricting the coupling parameters in accordance with assumptions on prospective associations. By setting paths to zero they are removed from the model and the bidirectional model is transformed into unidirectional or no-coupling models respectively. In line with previously proposed guidelines for the testing of specific hypotheses about dynamic associations in LCS modeling⁽⁶⁴⁾, we tested whether the unrestricted, bidirectional model ($\gamma_{ER} \neq 0, \gamma_{NA} \neq 0$), or any of the unidirectional models ($\gamma_{ER} = 0, \gamma_{NA} \neq 0$ or $\gamma_{ER} \neq 0, \gamma_{NA} = 0$), would show a significantly better fit than the no-coupling model ($\gamma_{ER} = 0; \gamma_{NA} = 0$).

Evaluation of model fit. Evaluation of model fit was based on fit indices provided by Mplus. The χ^2 statistic is considered a measure of overall model fit. As the χ^2 statistic is strongly associated with sample size, it is recommended that researchers examine the ratio of the χ^2 value to the degrees of freedom (df). According to Kline⁽⁶⁵⁾, any model with a χ^2 -to-df ratio of less than 3:1 indicates a good fitting model. We also provide the root-mean-square error of approximation (RMSEA)⁽⁶⁶⁾ and com-

parative fit index (CFI) ⁽⁶⁷⁾. RMSEA indicates model discrepancy per degree of freedom. Values below 0.08 show a good fit; values of between 0.08 and 0.10 provide mediocre fit ⁽⁶⁸⁾. More recently, Steiger ⁽⁶⁹⁾ proposed 0.07 as a cut-off for good model fit. The p value for RMSEA (p close fit) ⁽⁶⁸⁾ tests the null hypothesis that the RMSEA coefficient in the population is not greater than .05. If the p is greater than .05 (i.e., not statistically significant), then it is concluded that the fit of the model is close. The CFI indicates the relative reduction in model misfit when comparing the target model relative to an independent baseline model. As suggested by Hu and Bentler ⁽⁶⁹⁾ we considered Comparative Fit Index (CFI) values greater or equal to .95 as indicators of a good fit.

Results

Preliminary analyses indicated a notable increase in overall adaptive ER and a notable decrease of state NA over the first three weeks of treatment (see Table 1). Overall adaptive ER was negatively associated with state NA at all four assessment points. Increases in adaptive ER were negatively associated with decreases in state NA between the first and the fourth assessment point. When looking at the different components of adaptive ER separately, negative cross-sectional associations with levels of state NA were strongest for the ERSQ scales Awareness, Understanding, Modification, Acceptance, and Tolerance ($p < .01$; Table 2).

Latent change score modeling. LCS models examining prospective, time-lagged associations between ER and NA (see Figure 1) produced good model fit (see Table 3). As shown in Table 4, the cross-lagged effect from overall adaptive ER to subsequent changes in state NA was significant and negative ($\gamma_{ER} = -0.75$, $p < .01$). Consistent with our hypotheses, this finding indicates that overall adaptive ER as defined in the ACE model predicts change in the subsequent level of state NA. Patients reporting higher levels of overall adaptive ER were likely to experience a greater reduction of state NA. In contrast, the other coupling effect predicting changes in adaptive ER from previous NA scores was non-significant ($\gamma_{NA} = -0.04$, $p = .40$). Exploratory analyses on subscales of the ERSQ significantly linked Understanding, Modification, Acceptance, Tolerance, Readiness to Confront and Self-Support to a subsequent reduction of state NA. These paths remained significant after Benjamini-Hochberg procedure was applied to control for a potential Type I error accumulation. The ERSQ scales Awareness, Sensations, and Clarity were not associated with subsequent changes in state NA (see Table 4).

Test of nested models. For the ERSQ total score and each of the subscales displaying significant γ_{ER} regression paths in LCS models, the bidirectional model resulted in a significant improvement in model fit over the no-coupling model. For the overall ER score and the ERSQ subscales Modification, Acceptance, Tolerance, Readiness to confront, and Self-support, the unidirectional model including γ_{ER} resulted in a significant improvement in model fit over the no-coupling model, whereas the unidirectional model with γ_{NA} did not differ significantly from the no-coupling model (see Table 5). This

finding indicates that changes in these specific components of ER predict subsequent changes in state NA but not vice versa. For the subscale Understanding the bidirectional and both unidirectional models displayed a significantly better fit than the no-coupling model, indicating that both coupling effects are significant.

Discussion

The primary aim of the present study was to systematically test increases in a broad range of components of adaptive ER as predictors for subsequent decreases in state NA during the treatment for MDD. We assessed various components of adaptive ER and levels of state NA at four weekly assessment points during inpatient CBT for MDD. Findings indicate that overall adaptive ER was negatively associated with state NA at all four assessment points and changes of ER during treatment were negatively associated with changes in state NA. As expected, levels of overall adaptive ER predicted subsequent decrease of state NA (but not vice versa). Findings also indicate that prospective associations differed across specific components of adaptive ER. Whereas emotional understanding, modification, acceptance and tolerance as well as the abilities to confront and support one-self in distressing situations were significantly associated with a subsequent reduction of state NA, emotional awareness, clarity, and the use of bodily sensations to identify emotions were not.

Findings from the present study are consistent with previous research linking components of adaptive ER as specified in the ACE model to positive mental health outcomes including lower state NA and depressive symptom severity^(30, 40-42). They go beyond previous findings as they provide insight in prospective associations between components of adaptive ER and subsequent decreases in state NA over the course of depression treatment. State NA is a hallmark feature of MDD as well as a putative risk and maintenance factor for MDD^(2, 20-22). As such, the findings provide at least partial support for the assumption that the investigated components of adaptive ER help reduce state NA and, thereby, reduce the risk that state NA cues cognitive and affective processes that lead to the development or perpetuation of depressive symptoms. Future research should use longitudinal mediation analyses⁽⁷¹⁾ to further clarify to what extent changes in state NA mediate prospective associations of ER and depressive symptom severity.

An interesting finding of the present study is that specific components of adaptive ER differed notably in their associations with subsequent reductions of state NA. These findings are consistent with previous findings^(30; 40-42) and provide support for the hypothesis that abilities such as purposefully feeling and identifying emotions might foster effective ER (possibly by facilitating the use of cognitive coping responses)⁽⁷²⁻⁷⁴⁾, but are unlikely to have an impact on depressive symptoms if they do not actually enhance abilities ultimately relevant for mental health (such as the abilities to accept, tolerate or modify undesired emotions)^(35, 75).

Findings from the present study have important clinical implications. First, they imply that state NA in individuals suffering from depression can be reduced by systematically enhancing components of adaptive ER. This is consistent with findings indicating that the integration of the ART^(34, 36) enhances the efficacy of CBT for depression with regard to the reduction of both state NA and depressive symptoms⁽³⁰⁾. Secondly, as both deficits in adaptive ER and an excessive level of state NA are associated with various other mental disorders⁽³⁾, findings from the present study provide preliminary evidence that enhancing overall adaptive ER might also be effective for disorders other than MDD. If this hypothesis should receive support in future studies, research should also work to test the hypothesis that targeting putative transdiagnostic factors such as general ER deficits and NA might be a more efficient way to treat patients suffering from various comorbid disorders than utilizing a compilation of disorder specific treatments. At least, it should be tested whether targeting such transdiagnostic factors with adjunctive interventions such as the affect regulation training^(34, 36) or well-being therapy⁽⁷⁶⁾ is a valuable add-on in disorder-specific treatments for these patients.

Finally, the findings suggest that interventions exclusively focusing on the abilities to be aware of one's emotions and to correctly identify one's emotions might be less effective than interventions which primarily focus on abilities such as active modification or acceptance and tolerance of emotions. To further test this hypothesis, future research should systematically vary the focus of treatment on different components of adaptive ER and compare the effects on different dimensions of psychopathological symptoms. Such research should also work to identify factors that moderate the efficacy of specific components of adaptive ER - such as situational circumstances, type of mental health problem, and characteristics of the patient⁽⁷⁷⁾.

Strengths of the study include the use of a large and carefully diagnosed clinical sample treated in a routine health care setting, the repeated assessment of levels of adaptive ER and state NA over the course of treatment, the application of advanced statistical methods that have been developed to clarify reciprocal associations of interacting variables over time, and the simultaneous assessment of a broad range of potentially relevant facets of adaptive ER. Major limitations of the present study include the exclusive use of an observational design, of self-report-based assessments, and of a weekly time lag in the LCS analyses. Thus, future research should experimentally manipulate components of adaptive ER in depressed individuals and clarify the effects on state NA and other relevant antecedents and symptoms of depression. In such studies, multiple ways of assessing ER and negative affective states (e.g., self-report based, observer based, experimental, and biological) should be combined with integrating multi-trait-multi-method approaches⁽⁷⁸⁾ into the LCS models to control for measurement errors. Future studies should also aim to assess levels of adaptive ER and state NA

more frequently and clarify whether the effects of (specific) components of ER would differ with regard to their time lagged effects on subsequent changes in state NA.

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Table 1

Means, Standard Deviations and Cronbach's Alpha for Measures of Emotion Regulation and State Negative Affect.

<i>Measure</i>	Time 1				Time 2				Time 3				Time 4			
	<i>M</i>	<i>SD</i>	<i>N</i>	α	<i>M</i>	<i>SD</i>	<i>N</i>	α	<i>M</i>	<i>SD</i>	<i>N</i>	α	<i>M</i>	<i>SD</i>	<i>N</i>	α
Total ERSQ	2.74	0.79	188	0.97	2.94	0.80	186	0.97	3.10	0.79	172	0.97	3.22	0.76	139	0.96
Awareness	3.01	1.00	188	0.85	3.30	0.93	192	0.88	3.48	0.89	172	0.85	3.62	0.84	139	0.86
Sensations	3.12	0.94	188	0.82	3.24	0.93	192	0.77	3.40	0.76	172	0.80	3.51	0.81	139	0.78
Clarity	3.06	1.06	188	0.89	3.21	1.00	192	0.87	3.40	0.84	172	0.89	3.53	0.82	139	0.86
Understanding	2.71	1.09	188	0.87	2.96	1.00	192	0.89	3.16	1.01	172	0.89	3.28	0.89	139	0.86
Modification	2.18	0.92	188	0.88	2.41	0.98	192	0.92	2.53	1.00	172	0.91	2.66	0.96	139	0.88
Acceptance	2.57	0.99	188	0.90	2.73	1.02	192	0.88	2.91	1.06	172	0.88	3.04	0.98	139	0.91
Tolerance	2.37	0.99	188	0.91	2.64	1.04	192	0.91	2.76	1.02	172	0.92	2.85	1.03	139	0.90
R. to Confront	2.98	1.03	188	0.90	3.21	0.91	192	0.88	3.36	0.88	172	0.91	3.51	0.96	139	0.90
Self-Support	2.67	0.97	188	0.89	2.75	0.96	192	0.89	2.90	1.05	172	0.92	3.01	1.07	139	0.89
Neg. Affect	5.00	2.05	174	0.81	4.05	2.16	173	0.83	3.65	2.18	156	0.83	3.41	2.12	126	0.80

Note. ERSQ = Emotion Regulation Skills Questionnaire. R. to confront = Readiness to Confront

Table 2

Pearson's Correlations between Levels and Changes in Emotion Regulation and State Negative Affect

	Time 1	Time 2	Time 3	Time 4	Change Scores
Total ERSQ	-.42**	-.42**	-.56**	-.54**	-.34**
Awareness	-.18**	-.24**	-.33**	-.31**	-.27**
Sensations	-.17*	-.20**	-.31**	-.29**	-.10
Clarity	-.24**	-.21**	-.41**	-.36**	-.23*
Understanding	-.29**	-.28**	-.37**	-.45**	-.35**
Modification	-.47**	-.41**	-.57**	-.56**	-.40**
Acceptance	-.45**	-.48**	-.58**	-.57**	-.30**
Tolerance	-.49**	-.50**	-.62**	-.62**	-.27**
R. to Confront	-.35**	-.34**	-.39**	-.34**	-.22*
Self-Support	-.37**	-.41**	-.54**	-.47**	-.20*

Note. ERSQ = Emotion Regulation Skills Questionnaire. R. to confront = Readiness to Confront. * $p < .05$, ** $p < .01$.

Table 3

Model Fit

Model	χ^2 , df	χ^2 / df	<i>p</i>	RMSEA [90% CI]	<i>p</i> _{close}	CFI
Total ERSQ	36.73, 22	1.67	.03	.06 [.02, .09]	.31	.98
Awareness	36.73, 22	1.67	.07	.05 [.00, .08]	.49	.99
Sensations	42.44, 22	1.93	.01	.07 [.04, .10]	.15	.97
Clarity	46.06, 22	2.09	.00	.08 [.04, .11]	.09	.97
Understanding	31.51, 22	1.43	.09	.05 [.00, .08]	.52	.99
Modification	32.89, 22	1.50	.06	.05 [.00, .08]	.46	.99
Acceptance	36.57, 22	1.66	.03	.06 [.02, .09]	.32	.98
Tolerance	35.64, 22	1.62	.03	.06 [.02, .09]	.35	.99
R. to Confront	32.01, 22	1.46	.07	.05 [.00, .08]	.50	.99
Self-Support	28.75, 22	1.31	.15	.04 [.00, .08]	.64	.99

Note. ERSQ = Emotion Regulation Skills Questionnaire. R. to confront = Readiness to Confront. RMSEA = Root Mean Square Error of Approximation. CI = Confidence Interval. CFI = Comparative Fit Index.

Table 4
Regression Coefficients in Latent Change Score Models

Model	Proportion Parameters				Coupling Parameters			
	β_{ER} (ER \rightarrow Δ ER)		β_{NA} (NA \rightarrow Δ NA)		γ_{ER} (ER \rightarrow Δ NA)		γ_{NA} (NA \rightarrow Δ ER)	
	Estimate	S.E.	Estimate	S.E.	Estimate	S.E.	Estimate	S.E.
Total ERSQ	-.14	.19	-.69**	.13	-.75**	.23	-.04	.05
Awareness	-.65**	.14	-.63**	.10	-.27	.15	-.11*	.04
Sensations	-.51*	.21	-.58**	.09	-.21	.16	-.10*	.04
Clarity	-.74**	.16	-.63**	.09	-.24	.15	-.19**	.05
Understanding	-.54**	.13	-.65**	.11	-.40**	.15	-.11*	.04
Modification	-.26	.17	-.59**	.10	-.56**	.16	-.10*	.05
Acceptance	-.27	.25	-.69**	.13	-.72**	.22	-.09	.08
Tolerance	-.12	.29	-.57**	.12	-.72**	.18	-.06	.09
R. to confront	-.40*	.15	-.61**	.10	-.61**	.15	-.05	.04
Self-support	-.31	.17	-.62**	.10	-.58**	.16	-.10*	.05

Note. ER = Emotion Regulation. NA = Negative Affect. ERSQ = Emotion Regulation Skills Questionnaire. R. to confront = Readiness to Confront. * $p < .05$, ** $p < .01$.

Table 5

Bivariate LCS Models: Stepwise Test of Coupling Effects ($\Delta \chi^2 / \Delta df$ for comparisons with baseline, no-coupling model)

	Bidirectional model	Unidirectional model γ_{ER}	Unidirectional model γ_{NA}
	ER \leftrightarrow NA	ER \rightarrow_{Δ} NA	NA \rightarrow_{Δ} ER
	$\gamma_{ER} \neq 0, \gamma_{NA} \neq 0$	$\gamma_{ER} \neq 0, \gamma_{NA} = 0$	$\gamma_{ER} = 0, \gamma_{NA} \neq 0$
ERSQ _{total}	16.32/ 2**	.59/ 1	15.86/ 1**
Understanding	11.36/ 2**	5.5/ 1*	7.19/ 1**
Acceptance	18.13/ 2**	1.05/ 1	16.6/ 1**
Tolerance	16.1/ 2**	.03/ 1	15.14/ 1**
Self-support	18.62/ 2**	3.70/ 1	13.94/ 1**
Read. to confront	18.64/ 2**	1.91/ 1	17.75/ 1**
Modification	17.73/ 2**	2.62/ 1	14.2/ 1**

Note. Coefficients γ_{ER} and γ_{NA} as denoted in Figure 2.

* $p < .05$, ** $p < .01$.

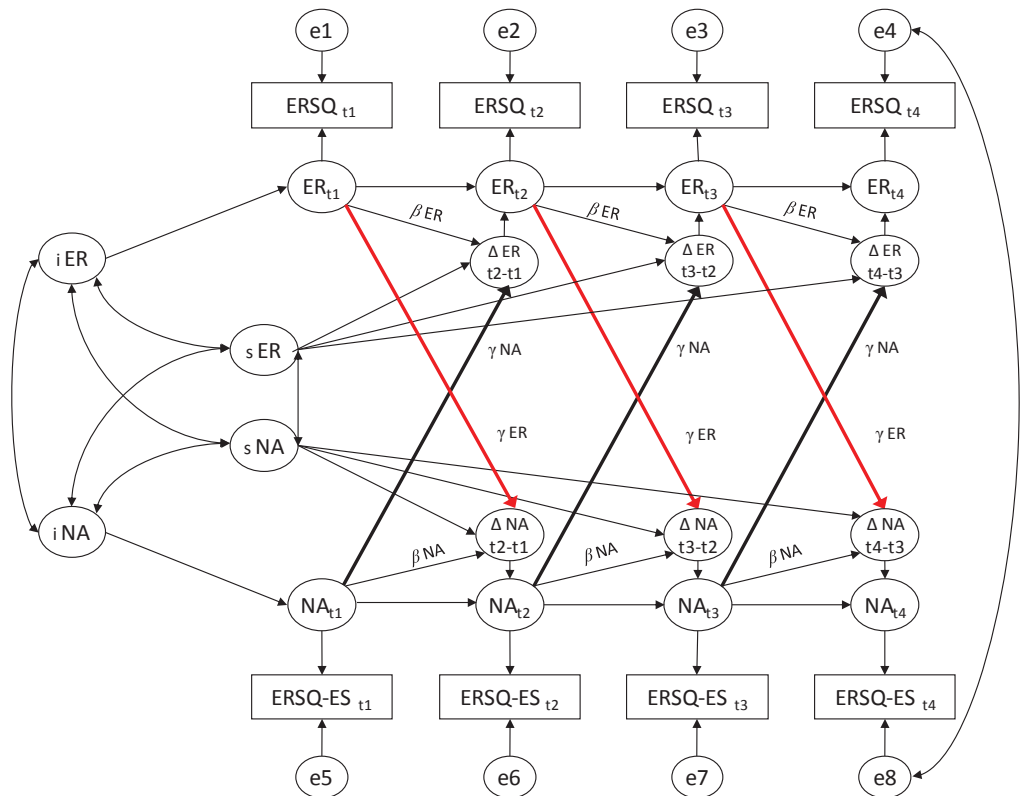


Figure 1. Bivariate Latent Change Score Model. ERSQ = Emotion Regulation Skills Questionnaire.

ES = Emotion Specific. ER = Emotion Regulation. NA = State Negative Affect. i = intercept. s = slope. Δ = Difference Score. Cross-construct error covariances are only shown for t_4 but are also included for the other measurement points; error variances were set equal within constructs; loadings of growth factors and autoregressive proportions were set equal to one; proportion and coupling parameters were set equal across time within constructs; for model identification, means of errors and intercept of observed variables and random correlations between intercepts and slopes were set equal to zero (Ferrer & McArdle, 2010; McArdle & Grimm, 2010). Models were computed for the total score of the ERSQ and each of the single scales.

7.4 Studie IV

Ehret, A. M., Kowalsky, J., Rief, W., Hiller, W. & Berking, M. (2014). Reducing symptoms of major depressive disorder through a systematic training of general emotion regulation skills: protocol of a randomized controlled trial. *BMC Psychiatry*, 14: 20. doi: 10.1186/1471-244X-14-20

STUDY PROTOCOL

Open Access

Reducing symptoms of major depressive disorder through a systematic training of general emotion regulation skills: protocol of a randomized controlled trial

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Abstract

Background: Major Depressive Disorder is one of the most challenging mental health problems of our time. Although effective psychotherapeutic treatments are available, many patients fail to demonstrate clinically significant improvements. Difficulties in emotion regulation have been identified as putative risk and maintaining factors for Major Depressive Disorder. Systematically enhancing adaptive emotion regulation skills should thus help reduce depressive symptom severity. However, at this point, no study has systematically evaluated effects of increasing adaptive emotion regulation skills application on symptoms of Major Depressive Disorder. In the intended study, we aim to evaluate stand-alone effects of a group-based training explicitly and exclusively targeting general emotion regulation skills on depressive symptom severity and assess whether this training augments the outcome of subsequent individual cognitive behavioral therapy for depression.

Methods/Design: In the evaluation of the Affect Regulation Training, we will conduct a prospective randomized-controlled trial. Effects of the Affect Regulation Training on depressive symptom severity and outcomes of subsequent individual therapy for depression will be compared with an active, common factor based treatment and a waitlist control condition. The study sample will include 120 outpatients meeting criteria for Major Depressive Disorder. Depressive symptom severity as assessed by the Hamilton Rating Scale will serve as our primary study outcome. Secondary outcomes will include further indicators of mental health and changes in adaptive emotion regulation skills application. All outcomes will be assessed at intake and at 10 points in time over the course of the 15-month study period. Measures will include self-reports, observer ratings, momentary ecological assessments, and will be complemented in subsamples by experimental investigations and the analysis of hair steroids.

Discussion: If findings should support the hypothesis that enhancing regulation skills reduces symptom severity in Major Depressive Disorder, systematic emotion regulation skills training can enhance the efficacy and efficiency of current treatments for this severe and highly prevalent disorder.

Trial registration: This study is registered with ClinicalTrials.gov, number NCT01330485.

Keywords: Emotion regulation, Major depressive disorder, Treatment, Skills training, Randomized controlled trial

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Background

Major Depressive Disorder (MDD) is currently one of the most relevant mental health problems for individuals and societies. With life-time prevalence rates greater than 15% [1] and rates of chronicity around 20% [2], MDD ranks fourth among all medical and psychiatric disorders when considering disease burden, and worldwide it is the number one cause of disability [3]. Treatments for MDD have been shown to be effective [2,4,5]. However, previous outcome studies also indicate that many patients still suffer from residual symptoms [6] and are likely to relapse within two years after treatment [7]. These findings indicate the need to enhance current psychotherapeutic treatments for MDD.

In an attempt to improve upon existing treatments, research has recently focused on deficits in emotion regulation (ER) as risk factors for the development and maintenance of MDD [8-10]. ER refers to implicit or explicit processes involved in attempts to change the quality, the intensity, or the duration of undesired affective states in accordance with situational demands, biological needs, and individual goals [11-13]. Focusing on aspects relevant to clinical utilization, Berking and colleagues [8,14-16] have conceptualized adaptive ER as the situation-dependent interplay of the abilities to (1) become aware of, (2) identify and label, (3) gain proper understanding of, (4) adaptively modify or (5) accept and tolerate affective reactions, (6) approach and confront situations likely to trigger negative affects when necessary to attain personally relevant goals, and (7) provide compassionate self-support in distressing situations. These abilities have been proposed to help maintain a sense of control in distressing situations and thus reduce the risk of depression [4,14]. Adaptive ER skills are also believed to help prevent, reduce or shorten the intensity or duration of dysphoric states that have been found to reactivate depressive thinking patterns contributing to the (re-)occurrence of major depressive episodes [17,18].

Consistent with these assumptions, deficits in ER have been linked to depressive and other psychopathological symptoms; successful application of adaptive ER skills was positively related to indicators of mental health [19,20]. Longitudinal [21,22] and experimental [9,23,24] studies support deficits in ER as important antecedents of MDD. In treatment outcome studies, interventions that included work on ER deficits were shown to be effective in treatment for MDD, e.g., Dialectical Behavioral Therapy [25-27], Emotion-Focused Therapy [28,29], and Affect Regulation Training (ART) [8,14,15].

Among all treatments targeting ER, ART is likely the only transdiagnostic program that explicitly and exclusively aims to enhance general ER skills in at-risk and clinical populations. Previous studies have shown preliminary support for the efficacy of ART. In police officers, a group

that had been shown to display significantly lower levels of adaptive ER competencies than the normal population, ART helped to enhance adaptive ER skills application [30]. In clinical settings, the ART program was evaluated in samples of inpatients. A randomly selected subgroup of patients meeting criteria for any mental disorder was offered to replace part of their regular cognitive behavioral therapy (CBT) with an abbreviated version of ART. Patients in the ART condition displayed significantly greater increases in adaptive ER, greater decreases in MDD and negative affect, and greater increases in positive affect than patients receiving only conventional CBT [19]. In a prospective randomized controlled trial on individuals meeting criteria for MDD [8], patients allocated to a condition in which some CBT sessions were replaced by a short version of ART also showed greater gains in the acquisition of health-relevant ER skills (modification, acceptance and tolerance of undesired emotions as well as effective self-support) and greater reductions of depressive symptoms when compared to patients in the regular CBT condition.

Despite these encouraging findings, existing research on ART is limited by a number of factors. First, previous clinical studies used a short version of ART. Second, ART has not yet been compared with an untreated control condition or with a condition that accounts for unspecific therapeutic factors. Third, it has not yet been investigated whether ART would augment the effects of other empirically-evidenced treatments for MDD (possibly because enhanced ER skills might allow patients to engage more intensely in the therapeutic process, [31]). Finally, in previous study outcomes the effectiveness of ART was exclusively assessed through self-report measures and only at pre- and post-treatment.

In an attempt to clarify whether experimentally enhancing general ER skills reduces depressive symptom severity and whether fostering adaptive ER skills enhances the outcome of subsequent individual CBT for depression (iCBT-D), we will evaluate the efficacy of ART in a prospective randomized controlled trial. Stand-alone and augmenting effects of ART will be compared with a waitlist control condition and a condition controlling for active ingredients common to most empirically evidenced treatments. Primary (depressive symptom severity) and secondary outcomes will be assessed at intake and 10 points over the course of the study. Measurements will include self-reports, observer ratings, ecological momentary assessments (EMA) [32] and will include experimental investigations and the analysis of hair steroids in subsamples.

Methods/Design

The study is designed as a prospective randomized controlled trial in an outpatient setting. Following three sessions with their individual therapists, enrolled patients will be assigned to the ART group, an active common factor-

based treatment control condition (CFT-C) or a waitlist control group using a computerized randomization tool (randomisation.net). Group therapies will be provided for 18 hours over the course of 8 weeks. Participants in the waiting condition will be offered to participate in ART after completion of the study. Following the group and a 4-week follow-up waiting phase, all participants will receive 16 hours of standardized and manualized iCBT for depression. Individual treatment will be continued beyond the study if necessary. An overview of the study design is illustrated in Figure 1. The study has been approved by the ethical committee of the German Psychological Society and of the University of Marburg. It was registered with ClinicalTrials.gov, number NCT01330485.

Inclusion and exclusion criteria

Inclusion criteria will include MDD as the primary diagnosis, age 18 or above, and sufficient German language skills. Exclusion criteria will include high risk of suicide, indication of substantial secondary gain (e.g., compensation issues), additional psychotherapeutic treatments, comorbid psychotic, substance-related, bipolar disorders, organic brain or other severe medical disorders, and severe cognitive impairments. Other comorbid disorders, including personality disorders, will be accepted to increase validity of the study.

Recruitment

Study participants will be recruited at outpatient treatment centers in Marburg, Mainz, and Kassel. Potential participants will be screened on eligibility and provided with study information on the phone. Interested and potentially eligible patients will receive additional written information on the study and be invited to a Structured Clinical Interview for DSM-IV Axis I and II (SCID I, II) in one of the study centers. Patients meeting inclusion criteria and having provided informed consent will be included in the study. Recruitment will be conducted consecutively, that is, 10 to 15 individuals at a time will be enrolled in each cohort.

Interventions

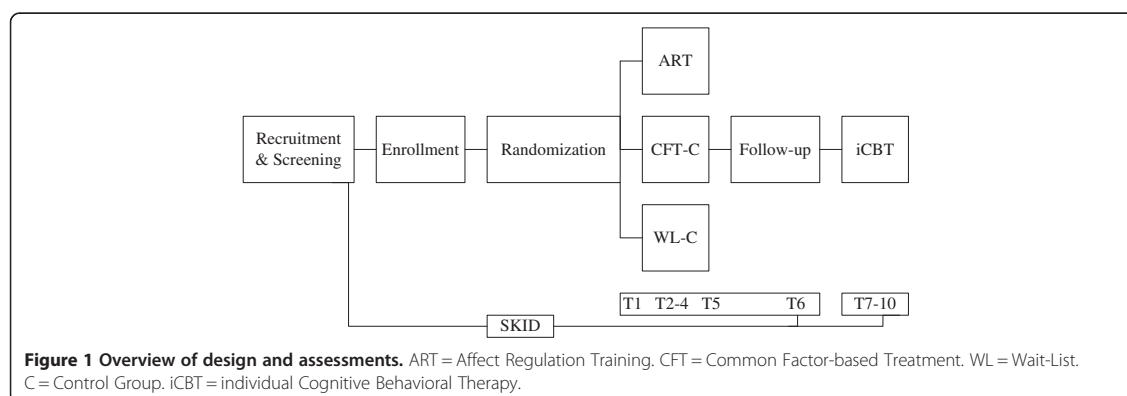
Interventions will include ART and CFT-C as group interventions and individual CBT for MDD.

Affect Regulation Training (ART)

ART was developed as an adjunctive or stand-alone transdiagnostic and group-based intervention, explicitly focusing on an increase in adaptive ER in individuals who meet criteria for mental disorders or are at-risk for developing mental health problems. To foster effective ER, ART utilizes elements from various psychotherapeutic approaches as cognitive behavioral therapy [33], dialectical behavioral therapy [27] emotion focused therapy [29], mindfulness-based interventions [34], neuro-psychotherapeutic translational approaches [35], compassion-based therapy [36,37], problem solving therapies [38], and strength-focused interventions [39,40]. At the beginning of the training, participants are provided with information on emotions including biological and psychological origins, functions, risks, and benefits of emotional reactions. Then seven “vicious cycles” based on findings from the affective neurosciences and deemed important in the long-term maintenance of negative affect, are presented. Individuals are taught skills to break these cycles and enhance effective ER. These skills include muscle and breathing relaxation, nonjudgmental emotional awareness, acceptance, and tolerance, compassionate self-support, the identification of causes of emotional reactions, and modification of affective states. In the building of ER skills, special emphasis is placed on the importance of regular training. Additional information on ART is provided in the ART manual [14-16].

Common Factor Treatment-Control (CFT-C)

CFT-C was established as an active control group to account for unspecific change mechanisms of psychotherapy (i.e., therapeutic alliance, resource activation, problem activation, motivational clarification, and problem solving) [35,39]. Following the identification of personally relevant goals and associated motives, acceptance is targeted for



goals that cannot or no longer can be achieved; problem solving processes are initiated for achievable goals. Problem solving steps that are taught include the identification and a detailed description of problems and relevant situational features, the definition of goals, the development, evaluation, selection, and processing of solutions, and processes of success monitoring and reinitiating the problem solving or acceptance processes when necessary.

Individual Cognitive Behavioral Therapy for Depression (iCBT-D)

Individual therapy will cover a 4-month period with 16 (weekly) 50-min sessions in total. Treatment will follow a manualized protocol based on procedures developed by Hautzinger [41], which includes psycho-education on MDD, behavioral activation, cognitive restructuring, social skills training, stress reduction, and relapse prevention.

Assessments

Participants will be assessed at intake and at 10 points over the course of the study: before (T1), during (T2-4), and after the group-based phase (T5), after the subsequent 4-week follow-up waiting phase before individual CBT starts (T6), during (T7-9), and post the first four months of individual CBT (T10). Measures will include self-report questionnaires, interviews, observer-based ratings, EMA, experimental investigations, and analyses of hair steroids. Questionnaires will all be provided in paper pencil format and in German language. Interviews will be conducted face-to-face by intensively trained Master's students majoring in clinical psychology who will closely be supervised by psychotherapists and psychotherapists in training for CBT, all of whom have Master's degrees in clinical psychology. Participants will be provided with iPhones for the EMA. Over 7-day periods, time-contingent assessments will be taken 3 times per day and one hour after each of the three assessments. Participants will be given the chance to supplement time-contingent assessments with event-contingent assessments whenever they feel significantly distressed. Enrolled patients will also be asked to participate in an experimental investigation of ER skills and to provide hair probes. Participants will be compensated 50 Euros for the burden associated with study diagnostics, and an additional 20 Euros will be provided for participating in the experiment or providing hair probes. An overview of study variables, assessment points, and instruments is provided in Table 1.

Primary outcome

The level of depressive symptom severity as assessed by the Hamilton Rating Scale for Depression (HRSD) [42] will serve as the primary study outcome. The HRSD is a clinician-administered semi-structured interview that assesses symptoms of MDD. Based on patients' responses,

clinicians rate the degree of 24 symptoms such as depressed mood, feelings of guilt, sleeping disturbances, and anxiety on 3-point or 5-point Likert scales. Higher sum scores indicate greater symptom severity. The cut-off points of 10, 19, 27, and 35 represent thresholds for mild, moderate, severe, and very severe depression, respectively. The HRSD is sensitive to change and corresponds well with overall clinical ratings of severity [43,44].

Socio-demographic variables

The following socio-demographic data will be collected: age, gender, marital status, partnership, children, current living situation, educational level, occupation learned, occupation held, and immigration.

Diagnostics

The Structured Clinical Interviews for DSM-IV Axis I and II (SCID I, II) [45] will be used to assess MDD and comorbid disorders. The SCID is a structured interview that assesses psychiatric diagnosis defined in the Diagnostic and Statistical Manual of the American Psychiatric Association, 4th edition (DSM-IV). The SCID II includes a screening questionnaire to limit the number of questions of the subsequent interview. DSM-5 diagnosis for MDD will be added when possible.

Stressors

The List of Situational Stressors (LSS) will assess for potential cues of negative emotional reactions to 11 daily events. Individuals are asked to rate how often within the last week they experienced stressors such as arguments with a friend, romantic partner or family member (interpersonal domain), high workload (work-related), financial problems (financial domain), and trouble with means of transport (everyday stressors). The scale has previously been used in a study on affective reactivity as a predictor of depressive symptoms [46].

Additional indicators of mental health

The Beck Depression Inventory II (BDI II) [47] will be included in this study as a secondary measure of depressive symptom severity. The BDI II is a widely used 21-item self-report measure of somatic, behavioral, emotional, and cognitive signs of depression. Good reliability and validity have previously been demonstrated [48].

An unpublished German translation of the Scales of Psychological Well-Being (SPWB) [49] will be used as an indicator of psychological well-being. The SPWB includes scales for autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. Given that psychometric analyses of the SPWB have not always supported the proposed six factor structure [50,51], we will use the total score in this study. High internal consistency and

Table 1 Overview of study variables and instruments

Domain	Instrument	T0	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10
Depressive symptom severity (primary outcome)	Hamilton rating scale for depression		×		×			×				×
Diagnostics	Structured clinical interview for DSM-IV Axis I, II	×						×				×
Stressors	List of situational stressors		×	×	×	×	×	×	×	×	×	×
Additional indicators of mental health	Beck depression inventory II		×	×	×	×	×	×	×	×	×	×
	Scales of psychological well-being		×	×	×	×	×	×	×	×	×	×
	Pos. and neg. affect schedule		×	×	×	×	×	×	×	×	×	×
	Short scales of affective states relevant for psychotherapy		×	×	×	×	×	×	×	×	×	×
	SHARP/others		×					×	×			×
	Brief symptom inventory		×					×	×			×
	Depression anxiety and stress scale		×	×	×	×	×	×	×	×	×	×
	Emotion reg. skills questionnaire		×	×	×	×	×	×	×	×	×	×
	ERSQ- others		×					×	×			×
Emotion regulation	Emotion reg. skills questionnaire- emotion specific		×	×	×	×	×	×	×	×	×	×
	ERSQ-ES- others		×					×	×			×
	Difficulties in emotion reg. scale		×					×	×			×
	Negative mood regulation scale		×									
	Trait meta-mood scale		×									
	Self-efficacy scale		×					×	×			×
Confounding variables	Multidim. perfectionism scale		×					×	×			×
	Rosenberg self-esteem scale		×					×	×			×
	Ecological momentary assessment		×					×				
Additional assessments	Laboratory experiment		×					×				
	Hair steroids		×					×				×

test-retest reliability coefficients were reported in the original validation study [49].

Positive and negative affective states will be assessed using the Positive and Negative Affect Schedule (PANAS) [52]. On 5-point Likert scales (0 = not at all to 4 = almost always), participants are asked to rate the frequency of 20 affective states. Within a previous validation study [52], good internal consistency was revealed, and associations with related constructs such as anxiety, depression, and neuroticism were significant and in the expected directions. To assess more specific emotional reactions, Berking developed the Short Scales for the Assessment of Affective States Relevant in Psychotherapeutic Treatments- Self/Other (SHARP). On 4-point Likert scales, participants rate how often they experienced 50 different emotions in the past week.

To obtain continuous information on comorbid symptom severity, a global severity index will be computed on all but the depression scales of the Brief Symptom Inventory (BSI) [53]. The BSI is a screening tool for psychological disturbance including depression, somatization, obsessive-compulsive symptoms, interpersonal sensitivity, anxiety, hostility, phobic anxiety,

paranoid ideation, and psychoticism. Adequate psychometric properties with very high internal consistency for the total score have previously been reported for the German scale [54]. Accounting for high comorbidity between MDD and anxiety disorders [55], the Depression Anxiety and Stress Scale (DASS-21) [56] will also be administered. The DASS is a 42-item self-report instrument designed to measure the three related negative emotional states of depression, anxiety and stress. To our knowledge, no validation study of the German DASS has been published to date. For the English scale, good to excellent internal consistency scores were reported, and associations with other measures of depression, anxiety, and stress were within the high range [57].

Emotion regulation

Successful application of adaptive ER skills will be assessed through self-reports and observer-based ratings using the Emotion Regulation Skills Questionnaire-Self/Other (ERSQ) [20]. The ERSQ is a 27-item measure addressing the application of nine competencies included in the ART model of effective ER (i.e., Awareness, Modification, Acceptance, Understanding, Sensations, Clarity,

Self-Support, Readiness to Confront, and Tolerance). Results from validation studies [20] indicate that both the total score and the subscales of the ERSQ have good internal consistencies and adequate retest-reliability. Associations with other scales supported the scale's convergent and discriminant validity [20]. To assess ER with regard to specific affective states, the Emotion Regulation Skills Questionnaire- Emotion Specific-Self/Other (ERSQ-ES) [58] will be used. Sound psychometric properties have previously been reported for this scale. The observer-based versions of the ERSQ and ERSQ-ES were developed for the purpose of this study and will be evaluated on the basis of study data.

Further applied ER scales with established psychometric properties include a German translation of the Difficulties in Emotion Regulation Scale (DERS) [59], the Negative Mood Regulation Scale (NMR) [60], and the Trait Meta-Mood Scale (TMMS) [61]. The DERS assesses difficulties in emotional awareness, emotional acceptance, goal-directed behaviors and the application of effective ER strategies. The NMR was designed as a measure of individuals' general expectancies that emotional states can effectively be changed through ways of behaving or thinking. The TMMS is a measure of emotional intelligence including the components of emotional attention, clarity, and mood repair.

Confounding variables

To control for potential confounds, we will assess general self-efficacy with a 10-item, validated German scale (Skala zur Allgemeinen Selbstwirksamkeitserwartung, ASE) [62]. Perfectionism will be assessed by the Multidimensional Perfectionism Scale (MPS) [63], including 35 items on concerns about mistakes, personal standards, parental expectations, parental criticism, doubts about actions, and organization. The Rosenberg Self-Esteem scale (RSE) [64] will be used as a measure of self-esteem. Adequate psychometric properties of these scales have been reported in the cited studies.

Other outcome measures

Targeting the issue of cognitive distortion and to increase ecological validity, EMA will be implemented as a real-time assessment of ER, affective states, and affective changes. Within EMA, affective states and ER will be assessed by short scales of the SHARP and ERSQ-ES. Additional questions will address location, activity, and interaction partners. To reduce self-report biases and to yield further information on causality, the effects of adaptive ER on positive and negative affect will be tested experimentally. In laboratory settings, negative and positive affective states will be induced by music and self-related statements using the Velten [65] method. Participants will be provided with oral instructions of adaptive

ER strategies (i.e., acceptance, positive reappraisal, compassionate self-support, positive appreciation). Hair probes will be taken to gather data for biological features of MDD. Elevated levels of hair steroids (i.e., cortisol and cortisone) have frequently been linked to MDD [66]. In the analyses of hair steroids, we will use liquid chromatography with linked tandem mass spectrometry.

Participants

Sample size for the group phase was set to $N = 120$ ($n = 40$ per condition). A minimum of $n = 90$ individuals ($n = 30$ per condition) is expected to complete individual CBT. Targeted sample sizes are based on power calculations. The intended sample of 120 individuals can be expected to provide sufficient power to detect small effects [67].

Statistical analyses

Data will be analyzed according to intent to treat and treatment completers principles. The intent to treatment analyses will be the primary level of analyses. Mixed effect modeling will serve as the main approach in the analyses of study data and in the treatment of missing values.

Growth curves of ER and depressive symptom severity will be computed per group on the basis of assessments before (T1-T5) and during individual CBT (T6-T10) to test for stand-alone and augmentation effects of ART. Slopes for the ART condition are hypothesized to be larger than those for the active or waitlist control groups, indicating the effectiveness of adaptive ER skills application enhancement and a decrease in depressive symptom severity by the ART program. In the secondary analyses, we will test for ART effects on well-being, positive, and negative affect. Bootstrapping enhanced, multilevel mediation analyses [68] will be conducted to test ER as a mediator of health improvements in the ART condition. Analyses will be conducted computing a total score of adaptive ER and separately for the different ART skills to understand the importance of specific ER skills. Moderated mediation analyses [69] will be used to examine the importance of specific ER skills in the mediation of positive health outcomes. Latent growth curve and latent change score modeling [70] will further be used in the investigation of reciprocal associations between levels and changes of ER and health outcomes. Comorbid symptom severity and potential confounding variables (i.e., general self-efficacy, perfectionism, and self-esteem) will be included in the analyses as moderating variables. The analyses of EMA and the experimental and biological data will serve to increase the validity of the ART evaluation. SEM-based Multi-Trait, Multi-Method approaches will be applied in the investigation of psychometric properties and in the comparison of outcomes by different assessment methods.

Discussion

We should find support for our hypothesis that systematically enhancing general ER skills helps reduce depressive symptoms in individuals meeting criteria for MDD, given that deficits in ER are commonly considered a relevant risk and maintaining factor for this disorder. Former studies on ART, a program explicitly and exclusively focusing on an increase in adaptive ER skills application, have provided preliminary support for this assumption [8,19]. However, the validity of these studies has been compromised through a number of limitations such as the lack of an untreated control condition or a condition that controls for unspecific therapeutic factors, the lack of testing for augmentation effects of the ART on other treatments such as individual CBT for depression, and the exclusive use of self-reports at pre- and post-treatment. To improve on these limitations of previous studies and to advance the literature on associations between ER and MDD, we will systematically evaluate ART in a prospective randomized controlled trial.

This study will provide significant contributions to the literature. First, by controlling for time and unspecific treatment effects, the results will provide insight into the effects of enhancing the application of adaptive ER skills on symptoms of MDD. Second, from the two-phase design of this study that includes a period of individual CBT following the group phase, the stand-alone effects of ART on ER and depressive symptom severity can be tested, as well as the augmentation effects of ART on CBT outcomes. Third, the application of various measures, including self-reports, observer-based ratings, momentary assessments, experimental investigations, and the analysis of hair probes, will augment the reliability of findings and help to overcome methodological restrictions such as cognitive distortion and social desirability in retrospective testing and self-reports. The implementation of various assessment points over the course of the study will allow for detailed analyses of changes in and associations between ER and depressive symptom severity.

In light of the methodological strengths, the present study has the potential to substantially increase knowledge on ER processes that underlie and maintain MDD. Given the likely importance of deficits in ER across disorders, this study might also yield a better understanding of comorbidity in MDD, which currently is one of the major challenges in the treatment of depressive disorders. Therapeutically, fostering adaptive ER skills application by ART might substantially improve treatment outcomes for individuals with depressive and possibly also comorbid disorders.

Competing interests

The authors declare that they have no competing interests.

Authors' contributions

All authors have made substantial contributions to the conception and execution of the study. The Affect Regulation Training was developed by MB, MB, WH and WR were responsible for acquiring funding for the study. AME, JK, WR, and MB will be conducting the study in Marburg, WH and MB will supervise the study in Mainz, and the study will be supervised by MB in Kassel. AME and MB drafted the manuscript. All authors revised it critically and have given final approval for the version to be published.

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8 CURRICULUM VITAE UND PUBLIKATIONEN

PERSÖNLICHE DATEN

Name:	Anna Magdalena Ehret
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AUSBILDUNG

Seit 2012	Promotionsstudium in der Abteilung für Klinische Psychologie und Psychotherapie der Philipps-Universität Marburg
Seit 2012	Weiterbildung zur Psychologischen Psychotherapeutin (Schwerpunkt Verhaltenstherapie) in der Psychotherapie-Ambulanz Marburg
2007- 2012	Psychologiestudium (Diplom) an der Otto-Friedrich Universität Bamberg und der University of British Columbia, Vancouver Diplomarbeit: Neuroticism and Well-Being: Does Emotion Regulation make the Difference?
2006-2007	Freiwilliges Soziales Jahr an der Bodelschwinghschule (Schule für Geistigbehinderte) Nürtingen
2006	Erwerb der allgemeinen Hochschulreife, Heinrich- Heine- Gymnasium Ostfildern

BERUFSERFAHRUNG & PRAXIS

2009-2010	Hilfskraft am Lehrstuhl für Entwicklungspsychologie der Universität Bamberg (Halten eines Tutoriums)
2010	4-monatiges, studienbegleitendes Praktikum an der Ausbildungsambulanz der Universität Bamberg (CIP-Ambulanz)
2007	6-wöchiges Praktikum auf der Akutstation der Psychiatrie Nürtingen

STIPENDIEN

Seit 2009	Promotionsstipendium der Philipps-Universität Marburg
2013	DAAD Stipendium zur "43rd Convention of the European Association of Cognitive & Behavioral Therapy" Marrakesch, Marokko, 2013
2010-2011	Auslandsstipendium des Cusanuswerks für einen Forschungs- und Studienaufenthalt an der University of British Columbia, Vancouver
2008-2012	Stipendium des Cusanuswerks (bischofliche Studienförderung)

FORSCHUNGAUFENTHALTE

2012	3-monatiger Forschungsaufenthalt an der Northwestern University, Evanston bei Prof. Dr. J. Joormann
2010- 2011	10-monatiger Forschungs- und Studienaufenthalt an der University of British Columbia, Vancouver; Konzeptualisierung und Durchführung einer Studie zu Emotionsregulation als Mediatorvariable zwischen Neurotizismus und psychosozialem Wohlbefinden mit Prof. Dr. S. R. Woody

PUBLIKATIONEN

Artikel in Fach-
zeitschriften
(Peer-Reviewed)

- Ehret, A. M.** & Berking, M. (2013). From DSM-IV to DSM-5: What has changed in the new edition? *Verhaltenstherapie*, 23, 258- 266. doi: 10.1159/000356537
- Ehret, A. M.**, Joormann, J. & Berking, M. (submitted). Examining risk and resilience factors for depression: The role of self-criticism and self-compassion. Manuscript submitted for publication in *Cognition and Emotion*.
- Ehret, A. M.**, Joormann, J. & Berking, M. (submitted). Self-compassion decreases depressed mood in individuals vulnerable to depression. Manuscript submitted for publication in *Cognition and Emotion*.
- Ehret, A. M.**, Kowalsky, J., Rief, W., Hiller, W. & Berking, M. (2014). Reducing symptoms of major depressive disorder through a systematic training of general emotion regulation skills: protocol of a randomized controlled trial. *BMC Psychiatry*, 14: 20. doi: 10.1186/1471-244X-14-20
- Ehret, A. M.**, Radkovsky, A., Joormann, J. & Berking, M. (submitted). Adaptive emotion regulation predicts decrease in negative affect over the course of depression treatment. Manuscript submitted for publication in *Depression and Anxiety*.

KONGRESSBEITRÄGE

- Ehret, A.M.** & Berking, M. (2013). *Effectiveness of emotion regulation strategies in individuals with Major Depressive Disorder: An experimental study*. Paper presented at the 43rd annual conference of the EABCT congress, Marrakesh, September 2013.
- Ehret, A. M.**, Radkovsky, A., Wirtz, C. M., Dierk, J.-M., Gärtner, T. & Berking, M. (2013, Mai). *Angemessener Umgang mit negativen Gefühlen: Evaluation der Effektivität unterschiedlicher Emotionsregulationsstrategien*. Poster-Beitrag beim 8. Workshop Kongress für Klinische Psychologie und Psychotherapie, Universität Trier.

9 ERKLÄRUNG

Ich versichere, dass ich meine Dissertation

„Adaptive Emotionsregulation im Kontext der Major Depression“

“Adaptive Emotion Regulation in the Context of Major Depression”

selbstständig ohne unerlaubte Hilfe angefertigt und mich dabei keiner anderen als der von mir ausdrücklich bezeichneten Quellen und Hilfen bedient habe.

Die Dissertation wurde in der jetzigen oder einer ähnlichen Form noch bei keiner anderen Hochschule eingereicht und hat noch keinen sonstigen Prüfungszwecken gedient.

Marburg an der Lahn, August 2014

Anna M. Ehret